

AERO MODELLER

AUGUST

1939

Vol. IV

No. 45

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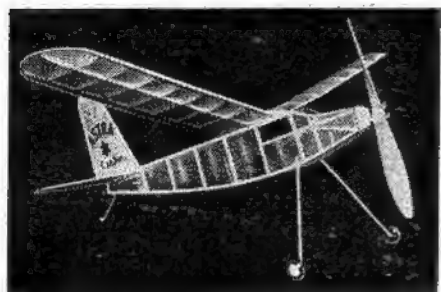
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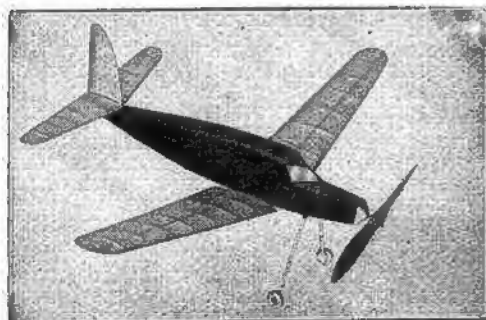
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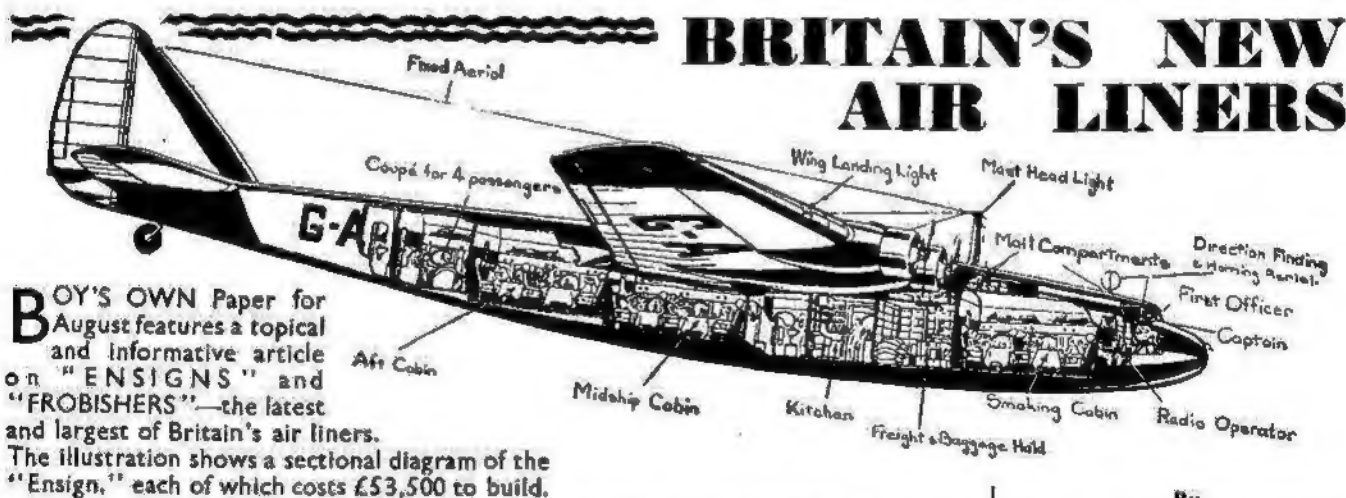
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The illustration shows a sectional diagram of the "Ensign," each of which costs £53,500 to build.

This issue also contains the first instalment of an exciting flying serial by E. Collins

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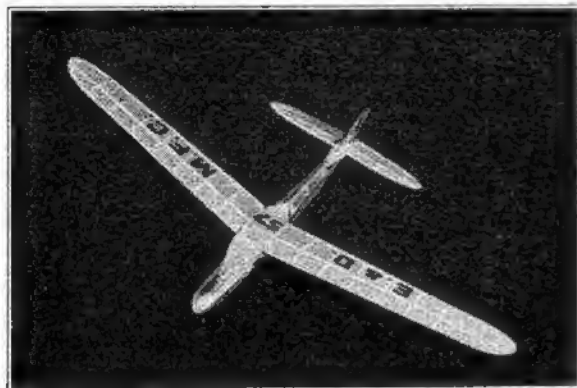
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VOL. IV. No. 45

AUGUST, 1939

CONTENTS

	PAGE
Frontispiece	522
Editorial	528
Photograph Competition	525
International Contest for King Peter II Cup	526
Report on Competition for the Hamley Trophy...	528
The Society of Model Aeronautical Engineers	530
S.M.A.E. Competition Results	531
On Test	532
A Short Story . . . with a Moral	535
Co-axial Airscrews and their Application to Model Aircraft	536
Airscrew Design	538
The Contest for the Clyde Model Dockyard Trophy	540
The Isle of Thanet Cup Winner	542
The "Flight" Cup Competition	544
Letters to the Editor	546
How to Build the AW-6	548
Solid Scale Models	551
The Northern Heights Gala Day	553
The Design and Construction of Streamlined Fuselages	557
How to Build a Three-Blade Scale Type Airscrew	559
Speed Model Design	561
Building the Super-Speedster	562
At the Sign of the Windsock	564
News from all the Clubs	567

**For Editorial and Business Notices see
last page**

WANTED—A TITLE



This photograph was taken at the Contest for the "Clyde Model Dockyard Trophy" Competition for Wakefield type models, held near Glasgow on June 4th last. 10s. 6d. will be paid to the sender of what is judged, by the Editor, to be the most appropriate title. Entries to be written on the back of a postcard, and must be received at Allen House, Newarke Street, Leicester, not later than first post August 1st next.

The photograph on our front cover page was taken at the Northern Heights Rally, and shows two members of the Barnes and District Club, A. W. Cumber and G. Sage, mending Sage's model—a valiant attempt which was defeated by rain.

Photo by Robert Dove.

The AERO MODELLER

AUGUST - 1939

Vol. IV. - No. 45

Tel. Leicester 65322

INCORPORATING THE 'MODEL AEROPLANE CONSTRUCTOR'

EDITORIAL

Simultaneously with the publication of this issue commences one of the greatest and most difficult competition programmes ever undertaken by the Society of Model Aeronautical Engineers, namely, the organisation and control of the King Peter Cup Competition, and Great Britain's attempt to win back from America the Wakefield Trophy.

We understand that the S.M.A.E. anticipate eight to twelve nations taking part in the former competition, and it is our privilege to give to our visitors a message of welcome from Lord Wakefield. We have pleasure in presenting this in Yugoslavian, French, German and Dutch. Coupled with this welcome is a few words of encouragement to the British Wakefield team. We therefore make no excuses for reprinting it in English.

* * * * *

Those of us who, through the help of our patron, have been, and will be enabled to meet our fellow aero-modellists from all over the world, can, in our hearts, re-echo those words, and, what is much more important, live up to them.

We couple our best wishes and those of our readers to both our visitors and the British Wakefield team, and trust that the happy choice of sailing on the *Aquitania* will be regarded as a good omen. It will be remembered that our victorious team in 1936 travelled to the States on this same ship.

We have before deplored the inadequacy of our pen to do justice, in these Editorials, to the major events which occur in the model aeronautical world, less still to comment on international affairs.

Once before Mrs. Thurston came to our rescue, by an excellent speech, from which we quoted, and once again we modestly retire to give this noble lady the front of the platform.

Speaking at the Northern Heights Rally, Mrs. Thurston touched again on a hope so often expressed by all civilised people that soon a lasting peace will come to this troubled world of ours.

Referring to the rapid expansion now taking place in model aviation in this country, Mrs. Thurston said:

"At the same time it seems necessary to aim at keeping a large vision of what is happening to the movement as a whole. This is not a matter for officials or a few outstanding flyers. It is a matter for every single aero-modeller who is, consciously or unconsciously, doing his bit towards creating an extensive national and international growth every time he does his own flying.

"The bond, which above all, unites all aero-modellers is the fact that they fashion with their hands the creations of their brains, and it is impossible to believe that this capacity for creative construction can be limited to their craft-hobby. Inevitably it must affect all their contacts with the life around them. That this is an actuality is borne out by the fact that at any large gathering, particularly international ones, aero-modellers, by complete absorption in their hobby, become so utterly unself-conscious that they cease to be of this or that nationality, or of any particular calling or position, and strong and lasting ties of understanding and friendliness are constructed. Always, be it understood, that the blight of officialdom can be escaped. So the creative construction underlying this wonderful craft-hobby extends far beyond its immediate field of action, and reaches regions which affect the whole world and all the human race.

"These thoughts seem opportune in view of the near departure of the British team to U.S.A., where they will be able to assist the work so magnificently begun by our King and Queen. Above all are these thoughts apt when the King Peter Cup contest is close at hand—when we hope to receive teams from many nations who are subject to such pitiful misunderstandings and conflicts among themselves. Is it too daring to hope that the unself-conscious creative construction of aero-modellers may be able to achieve where other influences have failed to find permanent and satisfactory solution?"



We reproduce herewith a photo of the cheque sent by Viscount Wakefield to the S.M.A.E. £250 towards the Wakefield Fund and £300 toward the expenses of organising the King Peter Cup Competition.

We wish to draw the attention of all readers to the revised membership form of the N.G.A. which is printed on the back inside cover of this issue. As originally devised, the Guild was open to membership of only those readers who became registered and regular readers of THE AERO-MODELLER. However, we have had a number of applications from readers who, for one reason or another, do not take copies of THE AERO-MODELLER every month. A number of readers have also pointed out that they do not buy their copies every month from the same newsagent, and whilst being regular readers they are unable to register for regular delivery from one particular newsagent. To meet these difficulties, we have now arranged for membership to be available to all readers, provided just one issue of THE AERO-MODELLER is

This petrol 'plane crashed into a pole . . . it is possible that it might have hit a person or property. . . . Surely no one will say that third-party insurance is unnecessary?



bought. Any issue from this one onwards will be sufficient.

As we have before pointed out, the N.G.A. was formed solely to make available third-party insurance to all aero-modellists in this country. The Guild has the full support of the S.M.A.E., and its insurance policy is approved and accepted as complying with the Society's rules regarding the flying of petrol 'planes in S.M.A.E. competitions.

Membership subscription to those readers who register as *regular* readers is 6d. in the case of rubber models, and 2s. 6d. in the case of petrol 'planes. Subscriptions from those readers who do not place orders for regular delivery of THE AERO-MODELLER each month will be accepted at 1s. for rubber models and 5s. for petrol 'planes. The insurance cover provided is the same for each class of members; gliders are included with rubber models; and any number of models of any type are covered.

* * * *

Regarding our revised list of names and addresses of club secretaries, we are arranging to publish an up-to-date list on a large sheet instead of a plan, to be presented with our next issue. A few days after publication of *this* issue, every club secretary we know of will receive a postcard on which will be printed his name and address and the name of his club. The wording will be exactly as we shall print in our list, unless we are advised otherwise. Will those club secretaries who require alterations kindly make same on the postcard and return to us by July 29th at latest?

Will those club secretaries who do not receive cards by July 25th kindly send us the necessary particulars by July 29th?

If all club secretaries will co-operate in this simple manner we shall be enabled to produce a really up-to-date list, the provision of which as a separate sheet which can be pasted on the club-house wall, or filed away for reference by every reader, should be of considerable use, especially as the sheet will contain full particulars of the N.G.A. and S.M.A.E. petrol 'plane rules and certain other information.

THE EDITOR.

CAN YOU TAKE A PHOTOGRAPH LIKE THIS?

It was taken by Capt. J. R. Blunt, and won First Prize in our 1937 competition for photographs of models in flight.

• • •
THIS COMPETITION IS OPEN
TO ALL READERS, AND
THERE IS NO ENTRY FEE
• • •

EIGHTEEN CASH PRIZES TO BE WON—

SIX FIRSTS OF £1
SIX SECONDS OF 10/-
SIX THIRDS OF 5/-
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All prize winners who are members of the N.G.A., and who have N.G.A. transfers showing on the models in their winning photographs, will have their prize money increased by 50%



JUDGES :

R. YORK ESQ.

J. R. BLUNT ESQ.

EDITOR, The Aero-Modeller

CLASS 1. Semi-Scale Flying Models

CLASS 3. Duration Type Flying Models

CLASS 5. Flying Scale Models

CLASS 2. Petrol Planes

CLASS 4. Gliders

CLASS 6. Solid Scale Models

COMPETITION RULES

1. Entrants' photographs may be taken by any person, other than a professional photographer.
2. All photographs submitted must be of entrants' own models.
3. No photographs can be returned to entrants.
4. Any number of photographs may be submitted, but each must have entrant's name and address typed, or written in ink, on the back.
5. All entrants submit photographs on the understanding that, in the event of their winning a prize, the copyright in the prizewinning photographs becomes vested in the proprietors of THE AERO-MODELLER, on payment of the prize money.
6. All entries must be accompanied by the entry form, duly completed by the entrant, which will be provided in the October issue of THE AERO-MODELLER (published on or about September 20th, 1939), and must be accompanied by the photographic competition coupons printed on page 491 of the July issue; on page 546 of this issue; and to be published in the September and October issues.
7. All entries must be sent to Allen House, Newark Street, Leicester, to arrive not later than first post on September 30th, 1939, and full results will be printed in the November issue, to be published on or about October 20th.
8. Entries for this competition will be accepted only on the understanding that the decision of the judges is accepted on all matters as final and legally binding.
9. Entry Forms which have not been properly completed, and/or entries which do not comply with all the rules of this competition, and/or which arrive after first post on September 30th, will be disqualified.
10. Photographs may be of models in flight, posed as in flight in the case of solid models only; or stationary. Quality of workmanship in models photographed will be of secondary importance, as the main object of this competition will be to obtain realistic photographs. Entrants should, therefore, pay particular attention to the background in the composition of their photographs.



VISCOUNT WAKEFIELD OF HYTHE, G.C.V.O.,
C.B.E., LL.D.

INTERNATIONAL CONTEST PRESENTED BY H.M. THE KING OF

On the occasion of the forthcoming International contest for the King Peter Cup it gives me great pleasure to send a message of good wishes to all the members of the various teams from all parts of the globe who are taking part in this international gathering of enthusiasts for model aeronautics. We in England remember with great pleasure the splendid hospitality which was shown to the British team by our friends in Yugoslavia last year, and are glad to have an opportunity to make some return. We cordially welcome all our visitors and look forward to a most enjoyable meeting.

I should like to take this opportunity to wish every success to the British team which is shortly leaving for the United States to bid for the Wakefield International Trophy. I am sure there will be keen competition. I am equally sure that the contest will be inspired throughout by that spirit of friendly emulation that always distinguishes model aeronautics, and so make a much-needed contribution towards international goodwill.

*Wakefield
of Hythe*

JUGO-SLAV.

Prilikom nastupajuće internacionalne utakmice za pehar Kralja Petra, čini mi veliko zadovoljstvo da mogu da izručim osecaje najboljih želja svima članovima raznih timova sa sviju strana sveta, koji uzimaju ucesca u ovom internacionalnom skupu ljubitelja Modela Aeronotike. Mi u Ingleskoj secamo se sa osobitim zadovoljstvom onog divnog gostoprinstva, koje nasem timu ukazase prole godine nasi prijatelji iz Jugoslavije, te se smatramo srećnim što nam se ukazuje prilika da mozemo u izvesnoj meri da im se oduzimo. Mi zelimo najsrdačniju dobrodoslicu nasim posetiocima a uverenii smo da cemo imati zajedno najprijatnije sastanke.

Koristim se ovom prilikom da uputim svoje zelje za svaki uspeh Britanskog tima, koji ce brzih dana da otputuje za Sajedinjene Drzave Amerike, da se takmici za Wakefield Internacional Trofeju. Uveren sam da ce borba biti neobicno ziva. Uveren sam takodjer da ce utakmica biti inspirisana potpuno duhom prijateljskih izraza koje su uvijek karakterisale Model Aeronautics, pa time doprineti mnogo-zelenu kontribuciju za internacionalnim dobrim odnosima.

WAKEFIELD.

FRENCH.

A l'occasion du prochain Tournoi International pour la Coupe du Roi Pierre, je me fais un plaisir de transmettre un message de meilleurs voeux à tous les membres des diverses équipes, venues de toutes les parties du monde pour prendre part à cette réunion d'enthousiastes d'avions mécaniques modèles. Nous rappelons avec un vif plaisir, en Angleterre, de la magnifique hospitalité qui fut prodiguée, l'année dernière, en Yougoslavie, à l'équipe britannique et sommes heureux de l'occasion qui s'offre de vous payer de retour. Nous souhaitons cordialement la bienvenue à tous nos visiteurs, dans l'attente d'un meeting qui s'annonce des plus agréables.

Je désire profiter de cette occasion pour souhaiter plein succès à l'Equipe Britannique qui partira bientôt pour les Etats-Unis pour y disputer le Trophée International de Wakefield. Je suis sûr de ce que la lutte s'avèrera dure. Je suis également certain de ce que les concurrents feront preuve, dans toute sa durée, de l'esprit de cordiale émulation qui a toujours été le trait distinctif de l'Aéronautique mécanique et qu'ils apporteront ainsi une contribution bien souhaitable au bon vouloir international.

WAKEFIELD.

DENMARK - FRANCE - GERMANY - GREAT BRITAIN

FOR THE KING PETER II CUP YUGOSLAVIA. LONDON, JULY 19-24, 1939



THE KING PETER CUP, AND
ON RIGHT THE WAKEFIELD
TROPHY.

The arrangements for the King Peter Cup Competition are as follows:—

Wednesday, July 19th, the arrival and reunion of competitors. The following day, Thursday, will be occupied in the flying and testing of models, to give our visitors a chance of studying English flying conditions. Friday will be devoted to the weighing and checking of all the entries. Saturday and Sunday are the two days on which the competition proper takes place. During Monday the teams will be taken to various places of interest in and around London, and at 7 p.m. a banquet will be held, given by Lord Wakefield of Hythe, at which it is hoped Lord Wakefield will preside. The results of the competition and distribution of prizes will take place during the banquet.

The Wakefield Team will be present at this function, and it will be in the nature of a "send-off" for them.



GERMAN.

Anlässlich der bevorstehenden Internationalen Konkurrenz um den König Peter Pokal habe ich das grosse Vergnügen, eine Glückwunschsbotschaft an alle Mitglieder der verschiedenen Mannschaften aus allen Teilen der Welt zu richten, die an diesem internationalen Treffen von Enthusiasten für Flugzeugmodelle teilnehmen. Wir in England gedenken mit viel Freude der hervorragenden Gastfreundschaft, die der britischen Mannschaft im vorigen Jahr von unseren Freunden in Jugoslawien zuteil geworden ist und sind froh eine Gelegenheit zu haben, etwas davon zu erwidern. Wir heissen alle unsere Besucher herzlich willkommen und sehen einem äusserst erfreulichen Treffen entgegen.

Ich möchte diese Gelegenheit wahrnehmen, um der britischen Mannschaft, die demnächst nach U.S.A. zur Teilnahme an der Internationalen Wakefield Trophäe abfahren wird, vollen Erfolg zu wünschen. Ich bin sicher, dass es dort eine starke Konkurrenz geben wird. Ich bin jedoch genau so sicher, dass der Wettbewerb durchweg von dem Geist freundschaftlichen Wettstreits beseelt sein wird, der die Modellfliegerei immer auszeichnet und auf diese Weise zum sehr wünschenswerten internationalen Verständnis beitragen wird.

WAKEFIELD.

DUTCH.

Het doet mij groot genoegen ter gelegenheid van de aanstaande wedstrijd om de "King Peter Cup" (Koning Peter Beker) mijn groeten en beste wenschen te kunnen uitzenden aan de leden van de verschillende groepen over de geheele wereld, die zullen deelnemen aan deze internationale bijeenkomst van liefhebbers van model-vliegtuigen. Hier in Engeland herinneren wij ons nog met de grootste voldoening de schitterende gastvrijheid, vorig jaar door onze vrienden in Joegoslavië aan de Britsche ploeg betoond en zijn wij blij nu de kans te krijgen om ons te revancheeren. Wij heeten onze bezoekers van harte welkom en verheugen ons al reeds in het vooruitzicht van een zeer prettige samenkomst.

Ik neem deze gelegenheid te baat om het beste succes te wenschen aan de Britsche ploeg, die spoedig naar de Vereenigde Staten zal vertrekken om mee te dingen naar de Wakefield International Trophy. Ik ben er van overtuigd, dat de wedijver zeer scherp zal zijn. Maar ik ben er evenzeer zeker van, dat deze wedstrijd door en door beziel zal zijn met dien geest van vriendschappelijken wedijver, die steeds het kenmerk is geweest van competities op het gebied van modellen voor de luchtvaart en op die manier zeer veel bijdraagt tot de internationale verbroedering, die men juist nu zoozeer noodig heeft.

WAKEFIELD.

HOLLAND - SWITZERLAND - YUGOSLAVIA

REPORT ON COMPETITION FOR THE HAMLEY TROPHY



Top left, Mrs. Robertson, who finished fourth—so far as we know, the first lady entrant to a National Petrol 'Plane Competition. (The gentleman on her left is her husband, who assisted!) Centre, Mr. D. A. Russell, with his latest model. Right, Mr. and Mrs. Coxhall, with their 'plane, which secured second place. Bottom left, Mr. Clompson's "Cavalier" taking off. Right, Mr. Rushen's scale model of a Rearwin Speedster.

A STRONG wind was once again in evidence on July 2nd for the Hamley Trophy, and the commencement was postponed until 2 p.m. There were 30 entries of all types, including two biplanes, which unfortunately seemed to find the wind rather a handicap.

In this competition three flights were allowed, points being gained for take-off, landing, and duration of glide; the engine run was limited to 20 sec., and a longer run entailed disqualification for that flight. Under these rules the most successful type of models seemed to be those with a wing span of 8 to 9 ft., and a motor of 9 to 10 cc. Models of this type gained the first two places.

On inspecting the models lined up awaiting their turn to fly several seemed to be rather above the average. Mr. Coxall was there with his 9 ft. "Commodore" powered with a Dennykite. This machine, which weighs 7 lb., is probably the most successful machine of this year, as it has won first place in the C.S.S.A. Cup, the *Flight* Cup, and at the Bournemouth Gala Day, and it came second in this competition. Mr. Russell had a 9 ft. Dennykite powered machine beautifully finished in silver, the sprung single strut undercarriage being particularly interesting. Mr. Grant had a 7 ft. biplane which, in addition to the usual undercarriage, had a nose wheel well forward to eliminate the possibility of nosing over on landing. In the cabin were two miniature pilots, complete with flying helmets. Another particularly outstanding model had monocoque fuselage and a 9 ft. tapered wing of a very high aspect ratio. The fuselage construction was very unusual. A piece of $\frac{1}{8}$ in. ply was cut to the required shape, wetted, and then wrapped

round with string to form a circular tube. No jig was used, and apart from a few formers in the nose to take things, such as the undercarriage, there is no internal structure at all. This type of construction, when highly polished, looks very striking indeed, and has a very high strength weight ratio.

During the day a great number of competitors found difficulty in taking off, although a push was allowed, owing to the constant changes of direction of the wind. Several models were overcome once in the air. A notable example was a small mid-wing model of about 50 in. span and powered with an Ohlsson '28. This machine had an angle of climb of about 75 degrees, but kept on getting blown past the vertical. Twice it recovered by rolling out, but on the third occasion it spun and dived into the ground with engine full on, from a height of about 100 feet. Mr. Riccard was unfortunate to have a jammed time switch on his first flight, and his machine disappeared from view at a height of at least 1500 feet. This machine was later reported to have been seen over the East India Docks.

Mrs. Ella Robertson, who is, I believe, Britain's first woman "petrol-modeller," showed us all how it should be done, with three very fine flights, which placed her fourth. A very good effort, indeed, for which Mrs. Robertson must be congratulated.

Mr. A. L. Dalton, who was flying an 8 ft. streamlined model fitted with an Ohlsson, made three very consistent flights, and its very flat glide undoubtedly was the main reason for his winning the trophy.

Results on page 531.

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THE SOCIETY OF MODEL AERONAUTICAL ENGINEERS

Notes on a Council Meeting of the S.M.A.E., held at the Central Y.M.C.A., Tottenham Court Road, on Wednesday, June 14th, 1939.

Dr. Thurston was in the chair.

The minutes of the previous meeting were read and confirmed.

Dr. Thurston then made an announcement that he had received a letter from Lord Wakefield intimating that his Lordship would be pleased to give a dinner at the conclusion of the King Peter Cup competition to the visiting teams, and that in all probability Lord Wakefield would preside at that gathering. There was a spontaneous outburst of enthusiasm from the Council on hearing this news. Dr. Thurston went on to say that he had received a cheque for £550 from Lord Wakefield, £800 of which was for the Wakefield Cup Fund, and £250 for the organisation of the King Peter Cup Competition. The Council expressed their great gratitude to Lord Wakefield.

Mr. Cosh, the Hon. Secretary, then dealt with correspondence.

This included a letter from the Blackheath M.F.C. congratulating the S.M.A.E. on the organisation of the Wakefield Trials.

A letter from the Chingford M.F.C. was read, in which it was stated that some of the members of this club had been persuaded to join the Woodford M.A.C. The Secretary had asked the Chingford Club's delegate to be present so that fuller information could be obtained. This gentleman was not present, and the matter was, therefore, postponed.

Mr. Rushbrooke then handed in a further donation from the Lancs. Club of £5 10s. 6d. toward the Wakefield Cup Fund, and £2 4s. 6d. toward the Dray Memorial Fund. This brought the Wakefield Cup Fund up to £266 16s., making the total to date, with Lord Wakefield's donation, £566 16s.

The following clubs were then affiliated:—

Maidenhead (11 members).

Igranic (21 members).

St. Albans (20 members).

Elm Park (10 members).

Battersea and District (10 members).

Liverpool and District (40 members).

With regard to the latter club, they had been previously affiliated, but on the reorganisation of the S.M.A.E. had allowed their affiliation to lapse. They had also made statements to the late Mr. H. H. Dray, Editor of the *Model Aeroplane Constructor*, alleging that letters addressed to the society had not been answered. The Secretary informed the meeting that Mr. Dray had been allowed to inspect the society's correspondence files and had satisfied himself that there was no truth in the allegations. Mr. Rushbrooke stated that the officials of the club had since been changed and that the allegations were made in error. The club was thereupon affiliated.

The following clubs were reaffiliated:—

City (Birmingham).

Uxbridge.

Lincoln.

Alterations and additions to timekeepers and council delegates were made for the following clubs:—

Rugby,

Woking,

T.M.A.C.,

Swinton,

Westwood,

Blackpool,

Chingford,

Warrington,

Huddersfield.

Sanctions of grounds for flying petrol models were granted to Lancaster M.A.S. and Glasgow M.A.C.

The Council next discussed the forthcoming trip of the Wakefield team to America. Dr. Thurston told the Council that he had informed Lord Wakefield that a team of six and one official were going, and that the official in question should be the Hon. Secretary, Mr. E. F. H. Cosh. On learning that Mr. Cosh would have to provide someone to carry on his business during the trip, Lord Wakefield had sanctioned an honorarium of £20 to Mr. Cosh. The Council decided unanimously that Mr. Cosh should be sent to America as the leader of the team.

At a previous council meeting, the question of sending two officials with the team had been considered, and it was decided at that meeting that two officials should be sent. This previous resolution was now discussed and finally confirmed.

The following gentlemen were then nominated:—

A. F. Houlberg,

J. C. Smith,

C. S. Rushbrooke,

C. A. Rippon.

The various nominees were requested to adjourn from the council room, and after a prolonged discussion a paper vote was taken. The nominees returned, and the result of the ballot was announced, which proved an overwhelming majority in favour of Mr. Houlberg.

Mr. Cosh then read a letter from the N.A.A., which stated that they had invited entries to the Wakefield Competition from countries having no officially recognised controlling bodies. It has also been proposed that the competitors should be allowed to fly whenever they pleased. The Secretary was instructed to inform the N.A.A. that both these points were out of order.

The Council then considered the rules for the King Peter Cup Competition. All the following resolutions were proposed, seconded and passed.

1. That all foreign entries should be received by July 10th.
2. That all proxy flyers be named on the entry forms.
3. That a red triangular pennant, measuring 25 cm. by 15 cm. be attached to the tow line within 80 cm. of the model.
4. That a circle of 2 metres be allowed around each winch, within which the person working the winch must remain.
5. That the distance flown by the model be measured up to 100 metres, with a standard measure, and that beyond this distance the measurement be taken by an optical device or an ordinance map.
6. That a fee of One Pound must accompany all protests.
7. That if the tow line breaks that flight be not counted.
8. That a grant be made to English competitors to enable them to stay in London during the competitions.

The question of the registration of petrol models used by the trade during testing purposes was once more brought to the notice of the Council, and it was suggested that a fee for registration of 10s. per annum be charged. This to cover any number of models the trade may desire to fly during the year, but this registration fee was not to allow a trade registered model to enter competitions. This suggestion was put to the meeting, proposed, seconded and passed.

The Council decided that a special notepaper be prepared for the use of the various Area Secretaries. It was announced that the north-eastern area of London will be holding their inaugural meeting on Monday, June 19th. It was stated that the Blackheath M.F.C. Secretary had written round to the clubs in the south-eastern area of London, and it was hoped that a meeting could be held in the near future. Mr. Rippon stated that the north-western area of London was shortly holding an inaugural meeting.

The Council desire to stress the fact that, during the present transitional period from direct representation to the area scheme, those clubs who have not commenced the operation of the scheme are at a disadvantage, and it was pointed out that Mr. Rushbrooke, representing the north-western area of England, was attending the Council meeting with twenty votes, while the total voting power of the meeting, including the north-western area, was fifty-four. It is, therefore, up to every club member to see that his club joins in the Area Representation Scheme as soon as possible.

A proposal from the Croydon Club that members of affiliated clubs owning petrol models should register these through their respective secretaries, was considered. It was pointed out that if this was done, affiliated club secretaries would know those members of their clubs owning petrol models. This suggestion was proposed and passed by the Council. Club secretaries can obtain the necessary forms on application from the Hon. Competition Secretary, Mr. J. C. Smith, 1 Treen Avenue, Barnes.

Another suggestion that a list of registered petrol model owners be published was rejected.

A proposal from the north-western area that a qualifying round for the Wakefield Cup Elimination Trials be held next year, was referred to the next council meeting.

Dr. Thurston having vacated the chair earlier in the evening, this had been occupied for the latter part by the Chairman, Mr. A. F. Houlberg, to whom a hearty vote of thanks was given.

The meeting closed at 11 p.m.

H. YORK, *Hon. Press Secretary.*

The S.M.A.E. would appreciate the loan of several pairs of binoculars for the duration of the King Peter Cup Competition. Will any readers willing to loan their binoculars post them to Mr. J. C. Smith, Hon. Comp. Sec., 1 Treen Avenue, Barnes, S.W.18 (or bring them to the competition). They will be required on Saturday and Sunday, July 22nd and 23rd.

S.M.A.E. COMPETITION RESULTS

WAKEFIELD TRIALS, 1939.

1. F. Almond, North Kent	230.3
2. N. Lee, Halifax	230.1
3. R. Copland, Northern Heights	198.2
4. R. T. Parham, Edgware	180.0
5. L. Stott, Halifax	175.0
6. R. A. Hill, Bournemouth	171.5
7. K. N. Bascombe, Northants	167.7
8. A. A. Bunce, High Wycombe	162.5
9. A. G. Bell, Northern Heights	161.5
10. J. E. Leadbetter, Bournemouth	159.13
11. A. Tindall, Lancs	152.25
12. E. W. Evans, Luton	151.53
13. A. A. Weston, P.M.A.S.	150.6
14. W. J. Prescott, Harrow	148.13
15. D. Durney, Hayes	146.43
16. P. W. Smith, Luton	146.13
17. H. Simmons, Blackheath	145.43
18. R. W. Mackenzie	141.56
19. D. Cairns, North Kent	140.5
20. A. D. Piggott, T.M.A.C.	139.4
21. H. P. Smith, Dartford	138.03
22. S. Pedersen, Harrow	137.7
23. P. T. White, Luton	136.0
24. W. R. Field, Cheam	132.5
25. H. E. Wilson, Luton	127.6

437 Entries.

HAMLEY TROPHY, 1939.

1. A. I. Dalton, Hayes	150.0	points.
2. J. Coxall, Hayes	120.15	"
3. F. Thomson, Brighton	116.2	"
4. Mrs. Robertson, Unattached	102.6	"
5. H. Norman, Hayes	87.0	"
6. J. F. H. Mahony, Hayes	86.55	"
7. S. G. Crabb, Hayes	82.0	"
8. N. H. Oldham, Essex Power	57.0	"
9. D. Weaver, Wembley	51.55	"
10. D. R. Robertson, Unattached	47.6	"
11. N. P. H. Rowe, Bournemouth	45.0	"
12. C. Fleming-Williams, Hayes	44.0	"
13. D. G. Frampton, Bournemouth	41.5	"
14. R. R. Smith, Hayes	38.0	"
15. D. A. Russell, Lancs.	31.2	"
16. A. Poulton, Luton	30.2	"
17. F. H. Gray, Blackheath	18.2	"
18. I. Lucas, Brighton	16.4	"
19. P. W. Clempson, Hayes	7.0	"

LADY SHELLEY CUP, 1939.

1. R. Copland, Northern Heights	221.16
2. J. Worden, T.M.A.C.	153.53
3. E. Chasteneuf, Blackheath	148.15
4. R. Mackenzie, Blackheath	147.416
5. J. O. Young, Harrow	137.45
6. M. W. White, Blackheath	135.3
7. W. Worden, T.M.A.C.	125.03
8. I. W. Hall, Northern Heights	124.23
9. R. J. North, T.M.A.C.	121.13
10. A. D. Piggott, T.M.A.C.	106.96
11. J. Disney, Northern Heights	101.43
12. A. G. Bell, Northern Heights	98.25
13. C. Gibson, North Kent	92.56
14. G. J. Liggett, T.M.A.C.	89.6
15. H. C. Smith, Harrow	88.85
16. I. Faulkner, Blackheath	88.513
17. W. W. Preston, Barnes	83.83
18. J. Wilson, Harrow	82.93
19. R. Smith, North Kent	74.06
20. J. Rees, Northern Heights	73.85
21. J. Morris, Edgware	72.7
22. F. E. Wilson, Northern Heights	64.93
23. D. Rees, Northern Heights	60.66
24. F. A. Brench, Hayes	52.73
25. Miss Lundy, Northern Heights	51.416
26. J. Marshall, Hayes	45.783
27. M. Rose, Blackheath	35.913
28. P. Taylor, Kingston	33.26
29. A. Self, Hayes	25.6
30. T. Wickens, North Kent	19.56
31. G. Blackman, Barnes	13.0
32. N. Blacklock, Harrow	11.6
33. N. Fletcher, North Kent	9.16
34. J. D. Taylor, Barnes	8.0
35. O. Wareham, Hawker	3.6

Dr. Thurston has presented to the S.M.A.E. a Gold Cup. This is a copy of a second century Danish drinking cup, and it will be presented to the leader of the British team in the King Peter Cup Trials.

Re the figure given on page 498 of our last issue, for a time of 19 min. 56.8 sec., in the name of Mr. A. C. Freeman, an entrant for the Caton Trophy. This should read: A/C. Freestone. A., time 9 min. 56.8 sec.



Kit supplied by Model Aircraft Supplies Ltd., 171 New Kent Road, London, S.E.1 (member of the M.A.T.A.).

Model entirely built and reported on by Miss W. Mason, AERO-MODELLER staff.

WHEN I joined THE AERO-MODELLER staff some two years ago, I little realized how interesting and varied the work would be—less still that I should ever write the "On Test" report. However, one day the Editor returned from London with the challenge from Model Aircraft Supplies Ltd., 171 New Kent Road, London, S.E.1, that "Miss Mason was not an experienced aero-modeller"! Naturally, I couldn't let that pass. Many thanks, Mr. York, for a challenge that has brought many pleasant modelling hours—and many thanks for the gift of the "Fairy Facula"! I am very proud of my 52 in. span semi-scale model, and hope my description of her will interest our readers.

My *only* difficulty has been in finding sufficient area to build upon. The table at home was forbidden ground—the pastry board (which the Editor so often advises to beginners) was far too small. At last I found a 7 ft. 6 in. plank, which I decided to saw to reasonable length, but father thought otherwise, so I just used the 7 ft. sixer—and when the plank and I walked in the family had to stay put until we walked out again! As I have already said the plank was my only difficulty. The plan and instructions were so well set out that, with a little careful study, I was able to build the whole of the "Facula" myself.

The kit contains ample supplies of first-class materials, and everything necessary to complete the model. The fuselage is constructed of good hard $\frac{1}{8}$ in. balsa, the rear portion of which is later cut adrift for easier transport. Two interesting features are the cabin, and the domed formers at the front of the cabin, which give the model a realistic scale effect and certainly help the appearance of the model tremendously. Being of 52 in. span the wings are neatly split in the centre, so that they can be divided for easy transport. They have a chord of 7 in., and are very strongly built. Leading edge is $\frac{1}{8}$ in. \times $\frac{1}{4}$ in. balsa, main spars $\frac{1}{16}$ in. \times $\frac{1}{8}$ in. balsa, and the trailing edge $\frac{3}{16}$ in. \times $\frac{1}{8}$ in. The ribs and riblets are ready cut, of constant chord, and made of $\frac{1}{16}$ in. sheet. The fin and tail 'plane are also strongly constructed. The undercarriage is detachable, and is made with 18 s.w.g. with

birch and balsa fairings—the wire so arranged that it recoils through the birch slot at the back of the fairing and takes all landing shock. This is a very ingenious device and quite simple to assemble. The finished model is very strong, 8 oz. in weight, and powered with 12 yards of $\frac{1}{16}$ in. rubber.

Some of you will have seen my model at the Northern Heights Rally. I would like to say that at that time it had not been tried for flying or trimmed—that was the reason I did not get a too satisfactory flight—(like all true aero-modellers I only finished my model the morning of the competition!) Since then I have had time to trim the model, and have already had the pleasure (or otherwise) of seeing it climb so well that it flew into electric wires and amputated its wing!

However, the damage was repaired, and now that I have had time to get used to the model I have been able to obtain some very interesting flights from it.

The "Fairy Facula" takes off after a very short run, and rose quite evenly, no doubt due to its wide span. I cannot claim any record performances as regards time because, although I hope I have disproved Mr. York's suggestion that I cannot build a model aeroplane, I don't claim the skill of a Chasteneuf or Copland... yet!

The excellent characteristics of this model are no doubt due to the fact that the design is a product of the oldest firm in the model aircraft trade. The model has been on the market for some little while, and that it is in no way out of date is shown by the number of models one sees in all parts of the country. I suppose you will wonder why the spots appear on the wings—well, like THE AERO-MODELLER, I have to move with the times and be up-to-date! I heard of the lady that built her model to match her Kodak dress, so why shouldn't my model have spots? It is, of course, the privilege of all contributors to have their own style, and whilst I realise that this "write-up" departs somewhat from the style of our Test Pilot, I hope I shall be excused any omission in regard to details of the kit. I can only remind readers that it is the first model I have built, and the best recommendation I can make is to repeat that I did *entirely build it myself*, and that it really does perform quite well.

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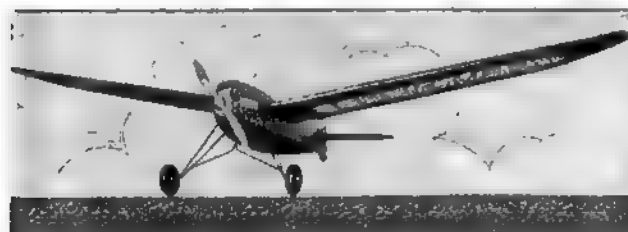
THE FAIRY FACULA

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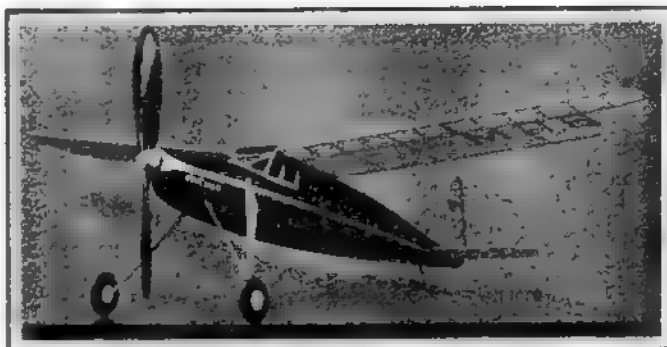
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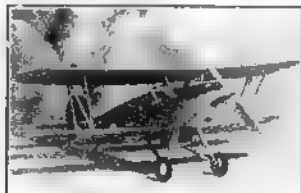
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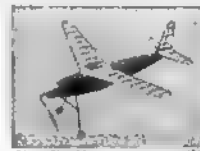
Good weather and the best of luck to all you enthusiastic modellers who are enjoying real "Summer Flying" during these months of July and August. A sound kit, well designed, complete with the best of materials, together with your careful construction, has gone to make that splendid new model 'plane which is going to bring you success in competitions or please you by the beauty of its performance for its own sake. Remember, for success the best of kits is the first essential, that's why it pays you to deal with Model Supply Stores. All our kits are sound, all our kits are good value for money, and all are backed by Model Supply Stores reputation for fair dealing.



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A SHORT STORY WITH A MORAL

By D. R. H. GARDNER

"I say, don't you think it's a bit too windy to-day?"



"POOR old Omar," I murmured softly to myself, and in my mind's eye I saw the revered Omar Khayam, not merely turning in his grave in the traditional and time-honoured manner but executing numberless flick rolls in his far-off gilded tomb.

For George, according to George (albeit a likeable cove) was of an artistic temperament and had just perpetrated this:

"A sunny day, a thermal, high, and wide—and thou, Why, then the blasted heath were Paradise enow."

And the inspiration therefor was his new Wakefield job.

To give George his due, she was a stout effort. You know the type of job, rubber and stringers, rubber and formers, clean lines and more rubber. Reminded one rather of Chasteneuf's '88 model. In fact I had remarked on this, and had been rewarded with a stony stare, followed by a sickly grin.

George had toiled at his workbench. In the early hours he had crept, gaunt, haggard and utterly weary, unwillingly to bed. He had lived for that model, dreamed about it, crooned to it, and now that it was finished and standing on the table, a vision of grace and beauty, his courage failed him.

"I say, don't you think it's a bit too windy to-day? Do you really think we ought to test her now," he said. Fixing him with my most authoritative and firmest glance, I let him see that there was to be no tomfoolery about testing this model: that there was to be no staring at it for hours admiring his own handiwork and artistry. This was a Wakefield job, it was a model that, with huck, was destined to fly for the honour and advancement of Old England. "*Floreat Etona*," and all that sort of thing. We were going to have to get to know this job. Know it inside out, from A and Z and vice versa; know all its tricks, its peculiarities; make friends with the

welcome bugs and cast out the troublesome ones. In short, we were going to have to be able to fly this particular model well, and the sooner we got acquainted one with another the better. All this I conveyed in my somewhat glassy stare (I have the priceless gift), and it was therefore only necessary to add in words, quietly and with feeling: "George, you poor boob, you quite unutterable and unspeakably unmentionable blot upon the escutcheon of this pleasant pastime of ours; you who were once the pride and joy of an affiliated club. Oh, that it should come to this. This is no wind, 'tis but a gentle zephyr; it comes to us with kind intent, and George, how sweet it is. It is a romantic zephyr, George; it has caressed the hair of Mrs. Thurston, queen of all the fairies of our model aircraft world; it has blown around the cave of the "Moving Finger" in distant hills; it has gladdened the hearts of the "Fanciers'" feathered oddities; and therefore let us bid welcome to this friendly breeze, and, going forth with gladsome hearts, and song upon our lips, let us test this model of yours."

I won.

Two miles of stolid plodding brought us to the flying ground, deserted, as was usual on Wednesday evenings; and this in itself had been one of the reasons why we had arranged to come to-day. You see, George is extremely hush-hush about his new models. You know the type of fellow. I thought you would.

George unpacked the coffin and erected the model with unsteady fingers. "What time is it?" he asked with glorious irrelevancy. The model all in one piece, George gazed at it, and once more that warm look began to appear at the back of his eyes. (Of course, I couldn't really see the backs of his eyes, but we authors have to put that sort of thing in you know, especially when we're paid according to the length of the work or opus.)

I snapped him out of this embryo day-dream in the manner calculated to have the most effect.

"It is five o'clock," I said deliberately. "They open at half-past, so if we test her right away it will be for the best, don't you think?"

Seeing the undoubted wisdom in this, George put the model through her gliding paces for a while, and finally turned to me.

"Will you," he mumbled, "hold her. I hate the job, but I suppose I'd better get used to winding all that rubber. Mind if I use your winder? Mine needs bracing around the bit," and he laughed in a hollow manner.

He plucked my winder from my hands, hooked on, and, having retreated the appropriate distance, began to wind, counting and wearing a frightful and fearsome expression on his face.

He was ill at ease. He was not his usual self. And indeed there was no joke in playing about with all that rubber. The model fairly bulged with the stuff, and the knots writhed as he wound, like muscles getting ready for a tremendous effort.

George began to walk in slowly.

"The Laocoon," I murmured. "George, I've always wondered what rubber being wound reminded me of. It's the Laocoon group, tremendous potential energy and"—then it happened. The rubber broke just at the nose of the model.

The tortured strands whipped like lightning in opposite directions. Half the rubber betook itself *vers* George, and, attempting to commit mayhem upon his person, smote

him soundly in the teeth. "Guh," observed George, and spat out a tooth, which had been loose for years anyway.

The remainder of the rubber—and to this day I mention it with hushed whispers—made a ghastly wreck of the fuselage. Not, let me hasten to add, a mere common or garden wreck but a beautiful Grade A, No. 1 size, tuppenny wreck; and even then, I fear, I am putting it a bit euphemistically.

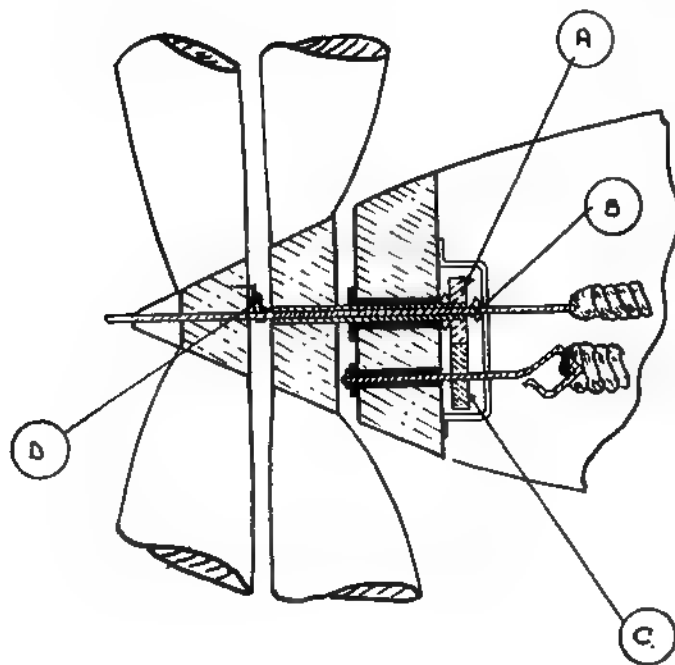
My finger was cut, George's lips were bleeding; but what were these slight wounds compared to the pain in our hearts, especially George's. George's face had assumed a bilious hue.

"I can't understand it," he managed to sob out eventually. "That rubber ought to have taken a thousand with several hundred to spare. I can't grasp what's happened yet," and he looked at what was left of the model with his soul in his eyes. "I gave her two hundred and fifty on the winder, and, dash it all, four times two hundred and fifty is only a thousand, isn't it?" he reasoned. I stoutly confirmed this platitude, and in due course suggested a walk to the "Jolly Sailor."

Incidentally, I have not yet told George, nor shall I ever tell him, that my winder is *eight* to one and not four to one, like his own. I appease my conscience by saying that he deserved all he got. A fellow who puts a thousand on a model for its first power flight, well, he's asking for some sort of trouble, even if it's not quite the kind he eventually gets. What do you say?

CO-AXIAL AIRSCREWS AND THEIR APPLICATION TO MODEL AIRCRAFT

By G. BADSY



CO-AXIAL airscrews have been flown with much success on full scale aircraft, notably the Koolhoven interceptor fighter, which carries its engine amidships, and has its airscrew drive running in concentric shafts. Also the present holder of the world's speed record, the Machi-Castoldi.

In applying the principle to models, we must first consider the effects. One of its most useful advantages is the fact that it divides the motor into two skeins, thereby increasing the number of turns. For instance, supposing a model required 20 strands of rubber, by having co-axial airscrews we can have two skeins of say 12 strands, the additional 4 counteracting the friction present.

A suggested system is shown in Fig. 1. The gear C drives gear A, this being fixed on a hollow shaft, in which runs the front airscrew shaft B. From this it will be seen that shaft B is quite independent of the lower shaft. Winding may be done at the rear of the fuselage through separate shafts, the model being built so that the fuselage aft of the motor attachment is detachable.

The calculation for airscrews is rather involved, but it is sufficient to say that, in general, co-axial airscrews will be smaller by about 10 to 15 per cent, and the pitch of the rear airscrew will be increased by approximately 8 to 12 per cent. This will be seen by the following calculations:—

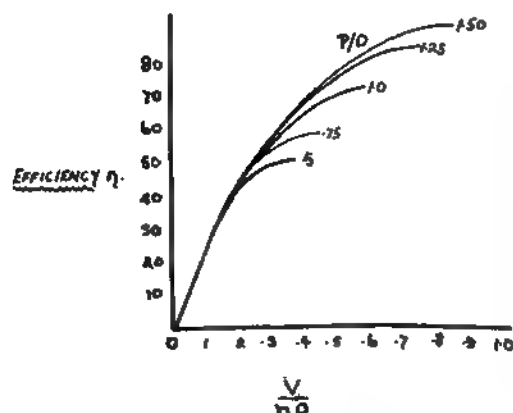


FIG. 2.

Knowing diameter, pitch, h.p., speed and airscrew efficiency, we can calculate first the pitch angle along the blade, and then the increment of speed of the air through the front airscrew.

Efficiency can be taken straight off standard curves of:—

$\frac{P}{D}$ versus $\frac{V}{nD}$ where D =diameter (in ft. or mills.)
 V =speed in F.P.S. or K.P.S.

Typical curves as in Fig. 2.

Then, in any airscrew the angle at any point along the blade is given by the relation:

$\tan \theta = \frac{P}{2\pi r}$ where θ =blade angle required.
 P =pitch in feet.
 r =radius at which point one wants the angle.

From Figure 3 it will be seen that rotational speed and forwards speed give the angle at which the resultant airstream meets the airscrew.

In Figure 3 ϕ is obtained from the relation:

$$\tan \phi = \frac{V}{2\pi rn}$$

and the angle of incidence for any section is: $\theta - \phi$.

Bearing this in mind, it follows that any increase in V (Fig. 3) must result in an increase of θ if α is to remain. Therefore the rear airscrew must have a higher pitch.

We must now calculate the increment of speed. The formula from which it is derived is based on Froude's Momentum Theory; and is:—

$$T = 2aVAp (V + aV) \text{ where } \begin{aligned} T &= \text{thrust in lb.} \\ V &= \text{speed F.P.S.} \\ A &= \text{area of inflow.} \\ P &= \text{air density.} \\ a &= \text{inflow.} \end{aligned}$$

The following numerical example will show clearly the steps in solving the equation.

Machine speed = 47 m.p.h. = 69 F.P.S.

Airscrew diameter = 6.28 ft.

Pitch = 5.54 ft. Engine = 110 h.p. at 2,000 r.p.m.

From curves efficiency = 60 per cent.

$$\frac{V}{nD} = \frac{69 \times 60}{2000 \times 6.28} = .83, \quad \frac{P}{D} = \frac{5.54}{6.28} = .88$$

$$\begin{aligned} \text{Thrust } T &= \frac{HP \times 550 \times \pi \text{ (efficiency)}}{V} \\ &= \frac{110 \times 550 \times 60}{69} \\ &= 526 \text{ lb.} \end{aligned}$$

For clarity the calculations have been made on a full scale aircraft, and after the principle has been grasped it may be applied to models. By working the metric system the figures can be kept sufficiently large to enable easier calculations to be made.

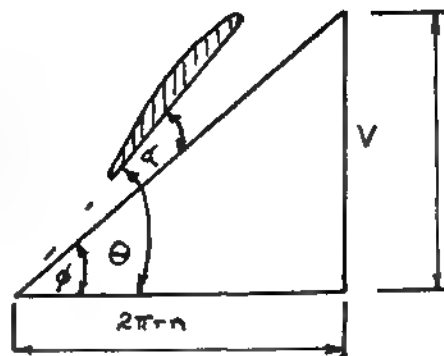


FIG. 3.

$$\begin{aligned} \text{Area of inflow} &= \frac{\pi}{4} (D^2 - .88D^2) \\ &= \frac{\pi}{4} (6.28^2 - 2.02^2) \\ &= 34.54 \text{ sq. ft.} \end{aligned}$$

From momentum theory:—

$$T = 2aVAp (V + aV) \quad (1)$$

$$\therefore 526 = -11.25 + .168 \times aV$$

$$aV = \frac{-11.25 + 126 + 354}{.886}$$

$$aV = \frac{11.25 + 21.9}{.886}$$

$$= \frac{10.65}{.886} = 81.6 \text{ F.P.S.}$$

So in this case V in Fig. 3 will have to be increased by 81.6.

In setting out the calculation $V = 69 + 81.6 = 100.6$ F.P.S.

In solving equation '1 the following simplification may be of some use:—

$$\begin{aligned} T &= 2aVAp (V + aV) \\ T &= -2VAp + 2Aa^2V^2 \\ AV &= \frac{-2VAp + \sqrt{-2VAp^2 + 4T2Ap}}{2(2Ap)} \end{aligned}$$

Thus it can be followed that knowing the pitch and diameter of the front airscrew and the diameter of the rear, the pitch may be found by using the same angle of incidence as on the front airscrew.

An alternative method of calculating the value of T in equation '1 is as follows:—

Thrust equals drag. Therefore, by calculating the wing drag and taking three times this value we get approximately the total drag.

$$\text{Wing Drag} = \frac{ClPAV^2}{2} \quad (2)$$

$$\text{Total Drag} = \frac{3(ClPAV^2)}{2}$$

$$\text{Knowing the total drag H.P.} = \frac{(Dt + W) \times V}{550}$$

Dt =total drag

W =weight lb.

V =speed F.P.S.

Total drag may be found by substituting for Cl in .2 the coefficient of body drag Cb . This varies for different types of fuselage shapes. Then add the wing drag to the body drag.

AIRSCREW DESIGN

WHEN designing a propeller it is usual to draw some such figure as shown in Fig. 1, to find what the blade angles must be at various points along the radius. If BC represents the radius, and BA the pitch/ 2π of the propeller, then the angles formed when points on BC are joined to A will be the correct angles at those points on the radius of the propeller.

Now, every propeller must have a certain amount of slip to obtain its thrust, and for maximum efficiency the slip should be about one-third of the pitch; the propeller diameter should be so chosen as to allow this amount of slip, and we will assume that this has been done. Coming back to Fig. 1, suppose AO represents the distance of slip. It can be seen that the angle of incidence at X, near the bearing, is the same as that at C, near the tips; but it can also be seen that, since the lift of an airfoil is perpendicular to the chord line, the lift or thrust at the tips is mostly in the direction of flight, while the lift near the bearing mostly constitutes resistance to rotation. It is the purpose of the first part of this article to explain how the blade angles may be designed so as to eliminate this loss of power due to "hub-drag."

It is usual for the airfoil shape of a propeller to begin about $\frac{1}{2}$ inch from the bearing, and this point is represented by X in Fig. 2. Since the hub only moves as far as O in one revolution, if we join X to O and take the angle formed as the blade angle at X, then the blade at X will be merely idling through the air-stream at 0 deg. incidence, and using up no power.

Naturally, the whole blade cannot be in this happy position, and the angle of incidence of the blade must be made to increase towards the tips, where more of the power used is turned into thrust. This is done by producing XO and CA to meet at D, as shown in Fig. 2, and drawing lines to D from points along the radius, the angles formed being the correct angles at those points.

Where any of these lines cuts AB, shows the pitch at the point from which it originates, and it will be seen that under flying conditions, the angle of incidence of the blade varies from 0 deg. at X to about 10 deg. at C, hub-drag being practically eliminated.

Of course, since the pitch varies between O and A, the average pitch will be rather less than BA, and it can be calculated to be about one-fifth of AO from A, corresponding to P, in Fig. 2. This is one-fifteenth of BA, the pitch required, so that when finding correct blade angles on any propeller, BA should be made $1\frac{1}{15}$ times the required pitch.

We have now obtained the most efficient angles at various points along the radius, and there remains to plot out the propeller blank, so that these angles will be incorporated. If the reader has read this far it is assumed that he is familiar with laying out propeller blanks, and that part will be omitted.

We now come to the second part of this article, which describes how to mark out a propeller blank so that when

it is carved the blades have the desired section, and not just a section that "looks about right."

Figs. 3 and 4 show plan and side elevations of a typical propeller blank, with its centre at B, and Fig. 5 shows the blade sizes and sections at various points on the propeller.

At half-inch from the bearing the blades must be of symmetrical section, since this part of the blade is at 0 deg. incidence. (See Fig. 5 A). At about one-third of the radius the section should change to "Clark Y," as in Fig. 5 B, and from this point the top camber should remain approximately the same for the rest of the blade, but between sections B and E the blade should be fairly deeply undercambered, changing to Clark Y at the tips, as in E, if a strong tip is required.

In Figs. 3 and 4 the small letters indicate points corresponding with points in Fig. 5.

First of all, the section desired near the bearing is drawn, then the section at one-third of the radius, as at B, and other sections at other points along the radius, such as those sections C, D, and E in Fig. 5.

Lines "xa" are then drawn in all these sections, shown dotted in Fig. 5; "x" corresponding to the trailing edge, and "a" to some point on the face of the blank. In the case of B, C, and D, "a" is midway between the edges of the blank, while in A it corresponds with the back edge, and in E also it is nearer the back edge. These positions of "a" are simply for this particular propeller.

The points "a" are marked on the face of the blank in Fig. 3, and joined by a line, shown dotted, and the wood corresponding to the shaded parts in Fig. 5, is cut away. Next, further lines "dc" are drawn in the sections A, B, C, D, and E, shown as broken lines in Fig. 5, and points are found on the face of the blank corresponding to points "c"; these points are connected together as shown by the broken line in Fig. 3. Similarly, points corresponding to "d" are found on the carved-away side of the blank, and joined by a line as shown in Fig. 4. The wood between these two lines is carved away, and there remains only to sandpaper away the ridges, when an almost perfect upper surface will result.

The bottom surface is formed by straightforward carving between the leading and trailing edges to form a flat surface, except between sections B and A, where the bottom surface is convex. A line "xb" is drawn in section A, and the point corresponding to "b" marked on the correct side of the blank. This is joined by a line to the leading edge of Section B, as shown by the diagonal line in Fig. 4, and wood carved away between this line and the trailing edge, the ridge formed along the line being sanded smooth afterwards.

The bottom surfaces of the blades are given the desired under-camber after section B, the under-camber being increased to a maximum at two-thirds of the radius from the bearing; this may be checked by putting a straight edge across the edges and holding up to the light.

DONT' JUMP ON THAT MODEL!

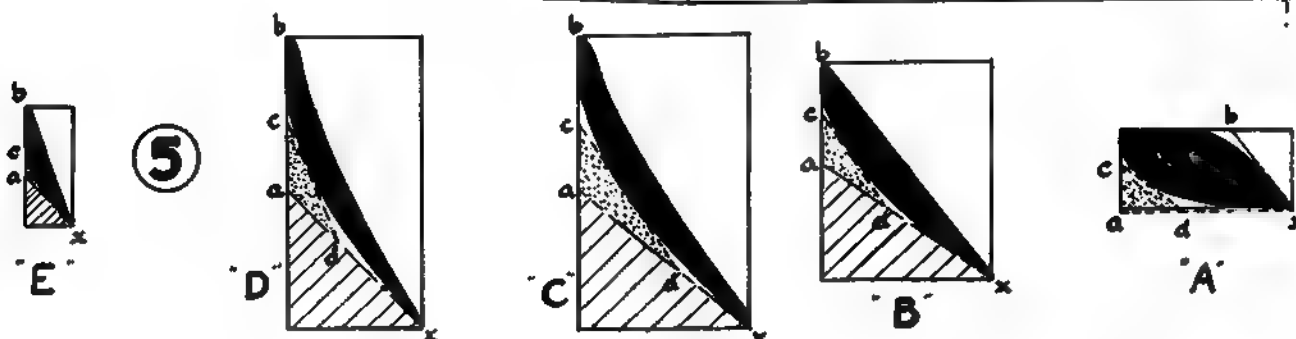
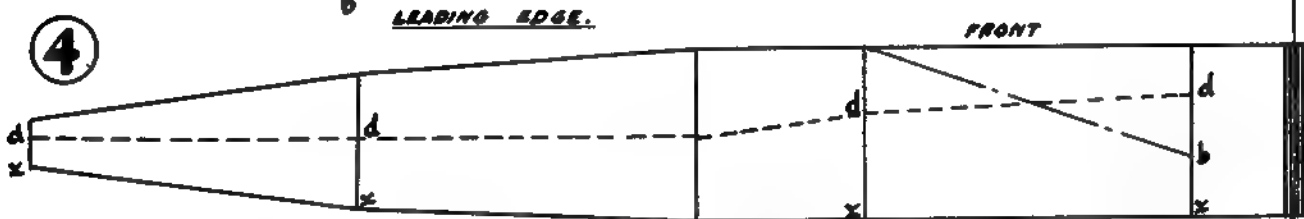
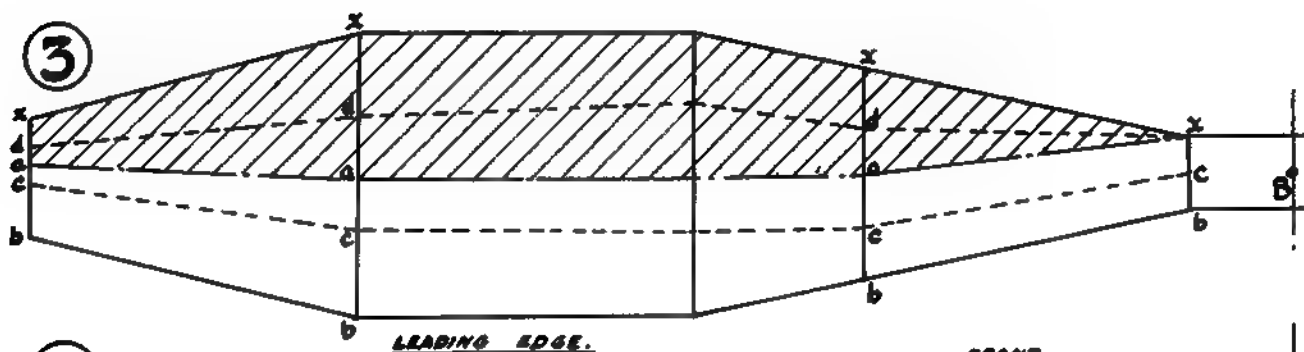
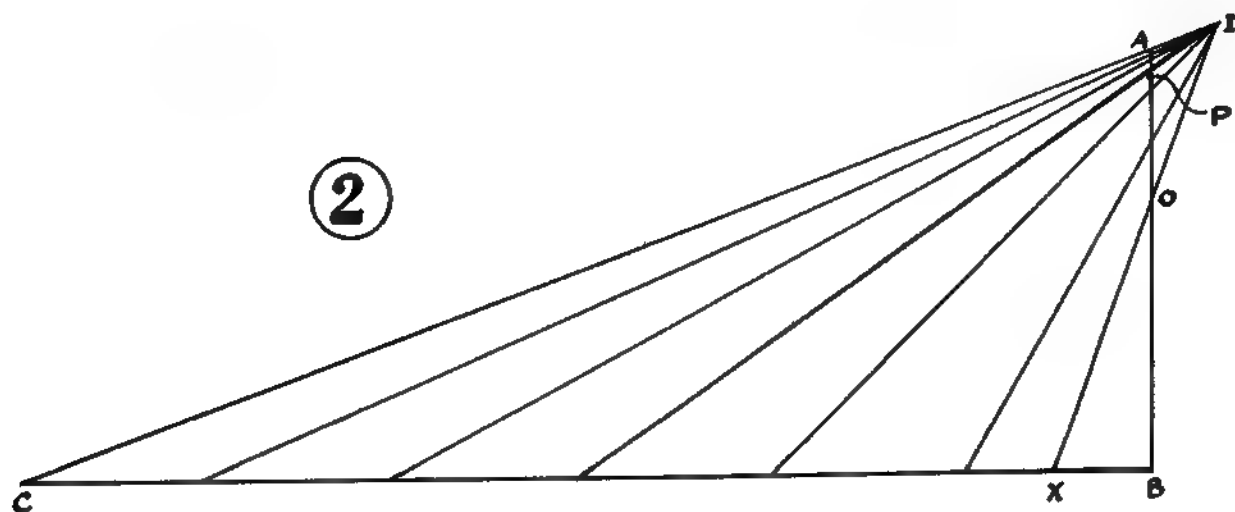
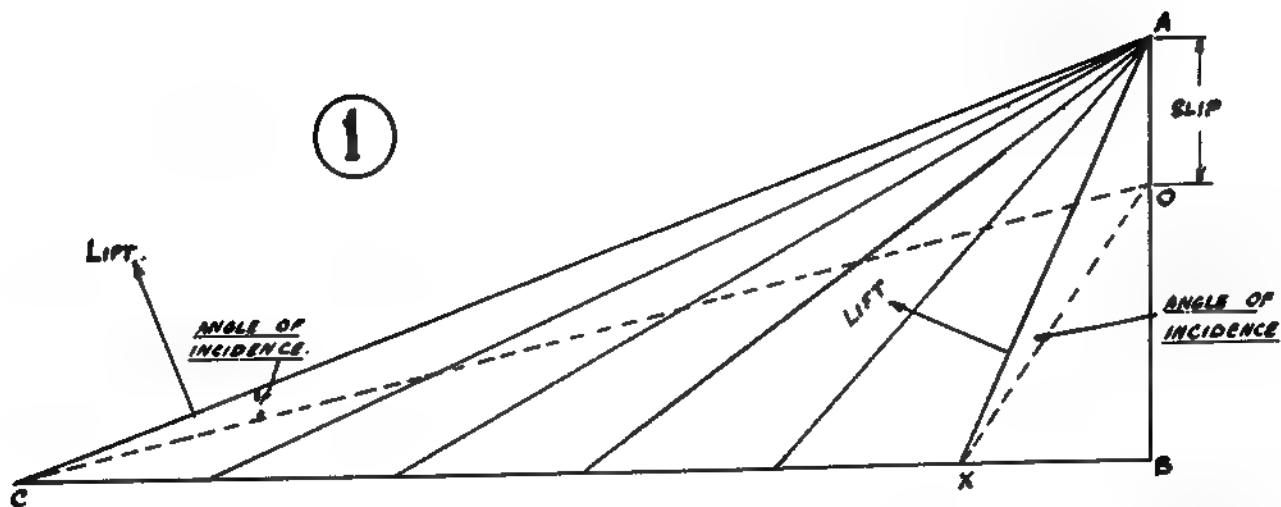
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IMAGINE a contest carefully planned for over a year. The day dawns, temperature 88 degrees; wind, a gentle zephyr. Such were the conditions on Sunday, June 4th, at Bishopriggs, near Glasgow, when the first Scottish National Contest ever was held.

When the writer arrived, shortly before eleven a.m., the air was thick with machines, many of which, alas, did not survive till contest time.

A bus load, which had left Aberdeen at 6 a.m., was there, another bus from Greenock, and a large number of private cars from north, south, east and west.

Most noticeable at first glance was the number of replicas of successful machines present.

Mr. Smith, of "slab-sider" fame, would have been very gratified, I am sure, to have seen some eight or ten copies of his machine "doing their stuff."

Also seen were Kordas, Chasteneufs, and several other well-known models.

Walking round the well laid out pits, the impression gathered was that, while the standard of workmanship

was high, there was not very much originality. Most noticeable was a one-wheeled

folding prop. monocoque machine from Ayr, which, however, seemed to have just a little too many gadgets. Mr. Traynor, of Leven, had put a lot of work into a home-made ball race made from clock parts. The whole ball race and works were contained in a hollow nose block. This model has done a regular 90 sec. on trial.

Mr. K. Henderson, of Glasgow, had all his tail surfaces sprung by rubber bands, suspension style. He reported having no trouble with surfaces shifting, although the lay-out appeared very vulnerable.

While looking around the machines, the air was being made hideous by the sound of rubber bursting. Presumably the heat was taking toll, as motors were "giving up the ghost" on 400 and 500 turns. It was a good job no rubber manufacturers were there!

Mr. MacDougall, of Greenock, was first to make an official flight, and his time of 102 odd sec. appeared to indicate good things to come. Shortly after, Mr. Whittet of Dundee did over 2 min.

However, this standard was unfortunately not maintained. Several machines which had performed very nicely on hand-launched trials refused to rise from the take-off boards, and these times were not bettered.

An indication of what could be done was given by Mr. Wilson, of the Hayes and District Club, who was a visitor, and ineligible to compete, being a Sassenach! Before lunch he had a fine flight of 7 min. H.L. with his Wakefield machine. On retrieving it after a cross-country run by car, he again set it up, and this time it disappeared vertically in a cloudless sky after 20 min. Word later came to hand that the model was found in a tar works at Camelon, some 15 miles away.

By six o'clock the three rounds had been flown, and all that was left of over 50 competitors took stock.



THE CLYDE MODEL FOR "WAKEFIELD" TYPE MODELS

By "CHATEX"

At top left is C. Whittet, of the Dundee Club, who was the winner. His model is the well known "Rocket," designed by W. E. Evans, and it made a best time of 2 minutes R.O.G., with an average for three flights of 85.15 seconds. At top right we have J. McDougall, of the Greenock Club, who was placed second, on the left of Whittet, and on the right Charles Alexander, of Edinburgh, who was placed third.

Cadets from the training ship, "Caledonia," made a good showing, with 6 models, one of which is shown in capable hands in another picture. At bottom of this page are two photos—which indicate how hot the weather was! At left a Caledonian lets go. And on right some lads from Dundee wind up.



The result was:—

1st, Mr. Whittet, Dundee, average 85.15 sec., flying a W. E. Evans' "Rocket."

2nd, Mr. MacDougall, Greenock, average 88.6 sec., flying a "Smith Wakefield."

3rd, Mr. Alexander, Edinburgh, average 74.0 sec., flying own design streamlined machine.

The winning machine was beautifully finished, the propeller being a work of art. It was finely made and french polished, while the whole machine was finished with a gloss dope that gave a mirror-like surface.

The trophy was presented by Mrs. Young, wife of the ex-President (not ex-wife of the President, as was suggested by some "cad"!)

Special thanks are due to the Glasgow Club, and in particular to Mr. Sowter, for the organisation and spade work of the last few months, which culminated in a smooth running, highly enjoyable contest, more so as the

work involved gave them little opportunity of participating in an historic occasion.

Thanks also to Miss Allen, of the Clyde Model Dock yard, who most unselfishly provided an oasis in an arid desert (the nearest pub. is miles away) with her refreshment tent (milk, lemonade and sandwiches only). The 'planes are the only things that are supposed to get into spins, you know!

In conclusion, my apologies to those who so obligingly let me "see the works," and do not find themselves mentioned. May I have to report them as winners next time!



THE ISLE OF THANET CUP WINNER

Designed by M. CRUTCHER

Fuselage.

THE longerons and cross-struts are made from $\frac{3}{32}$ in. hard balsa, and the places indicated on the plan are filled in with $\frac{3}{32}$ in. sheet balsa, and the rear portion of the two is bored to take $\frac{1}{8}$ in. diameter birch dowel. The nose-block is carved from medium balsa, and a brass bush holds the 20 s.w.g. propeller shaft.

Main Plane.

The main spar is of $\frac{1}{8}$ in. "T" section balsa, and the leading and trailing edges are of $\frac{1}{8}$ in. \times $\frac{1}{8}$ in. and $\frac{1}{8}$ in. \times $\frac{1}{8}$ in. stock respectively.

All ribs are $\frac{1}{16}$ in. medium sheet balsa, and the wing tips are of $\frac{3}{32}$ in. diameter reed cane.

The wing is made in three portions, these being cemented firmly together before covering, with the centre ribs at such an angle as to form the correct dihedral.

Undercarriage.

The legs are of $\frac{1}{8}$ in. \times $\frac{1}{8}$ in. maboo, sanded to a streamline section, and plugged into paper tubes (details on plan). 1 in. diameter celluloid wheels are held on by 20 s.w.g. axles bound to the legs.

Tail Units.

The rudder post is of $\frac{1}{8}$ in. \times $\frac{1}{8}$ in. balsa, as are all rudder ribs. The leading edge is of $\frac{3}{32}$ in. \times $\frac{3}{32}$ in. balsa, and the trailing edge of $\frac{3}{32}$ in. diameter reed cane.

The leading edge of the tail-plane is of $\frac{3}{32}$ in. \times $\frac{3}{32}$ in.

stock, and the trailing edge of $\frac{1}{16}$ in. \times $\frac{3}{32}$ in. stock, with $\frac{3}{32}$ in. sheet ribs and $\frac{3}{32}$ in. diameter reed cane tips.

Propeller.

This is of medium pitch, is made of balsa, and fitted with any good variety of free-wheel device. Two cup washers are between the propeller and nose block.

Covering.

Yellow jap tissue was used throughout in the original, and was given two coats of dope all over.

Power.

Eight strands of $\frac{1}{8}$ in. \times 1/30 in. rubber of length 24 in. each strand, have secured flights up to 8 minutes out of sight.

LIST OF MATERIALS

SHEET BALSA.

$\frac{1}{8}$ " \times 1" \times 36" 1 off.
 $\frac{3}{32}$ " \times 1" \times 36" 1 off.
 $\frac{1}{8}$ " \times 1" \times 36" 1 off.

Block balsa 1" cube (for nose block).
 1" dia. celluloid wheels.

STRIP BALSA.

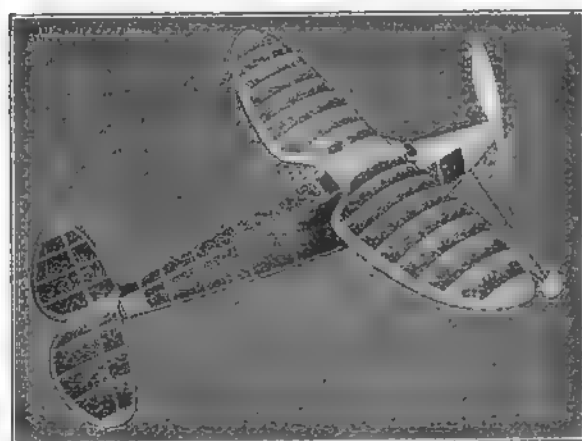
$\frac{1}{8}$ " \times $\frac{1}{8}$ " \times 36" 1 off.
 trailing edge section.
 $\frac{1}{8}$ " \times $\frac{3}{32}$ " \times 36" 1 off.
 $\frac{1}{8}$ " \times $\frac{1}{8}$ " \times 36" 1 off.
 $\frac{1}{8}$ " \times $\frac{3}{32}$ " \times 36" 1 off.
 $\frac{1}{8}$ " \times $\frac{1}{8}$ " \times 36" 1 off.
 $\frac{1}{8}$ " \times $\frac{1}{8}$ " \times 1" balsa.
 2 sheets of tissue.
 Approx. 4½ yds. $\frac{1}{8}$ " rubber.

ACCESSORIES.

Bamboo $\frac{1}{8}$ " \times $\frac{1}{8}$ " dia.
 Bamboo 12" \times $\frac{1}{8}$ " square.
 8" 20 s.w.g. steel wire.
 1 bush (for nose block).
 18 s.w.g.
 1 18 s.w.g. steel hook.
 Cement, dope, tissue paste.
 2 $\frac{1}{8}$ " bore paper tubes,
 each 2 in. long.
 40" \times $\frac{1}{8}$ " dia. reed.
 2" \times $\frac{1}{8}$ " dowel.

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On left are shown Miss W. Mason and John Klee, of The A.-M. staff, with W/O P. R. S. Gutteridge, at Cranwell. In the background is a "Wellington."

On right are photos taken at the meeting.

which things had been arranged, and gave point to comments heard that perhaps the S.M.A.E. could with advantage make more use of such facilities where possible.

One thing only spoilt an otherwise perfect day, and that, as usual, was the weather! A chilly wind, with every prospect of rain later in the day, was more noticeable in comparison with the fine, hot weather that had prevailed up to this date.

With an enemy of over thirty, a start was made under quite good conditions, and some extraordinary good flying got going. It was noticeable that generally the larger machines got off the ground better, and whilst not being able to state definitely, I think I am right when saying that the figures giving the better take-off awards refer to the bigger machines.

Workmanship and originality generally were of a high standard, and it is also significant that not one of the competitors listed used a mechanical starter. The five bonus points gained through "hand-starting" can make all the difference in the world in the final total of points, and, anyway, for a competition of this type the motor should be well enough tuned to make the use of a booster superfluous.

The flying figure of 56 seconds was selected by ballot, and it is remarkable how close some got to this figure, three competitors getting within one second of the mark. Coupled with good take-offs and landings, two of these chaps won out to the top positions, the third making rather a hash of his landing and suffering in consequence. A study of the flying points will show that most competitors were erring on the short side, surprisingly enough not one going beyond the stipulated time.

With the first round nearly completed, somebody suddenly happened to look behind, and discovered the

As most of you know, the S.M.A.E. this year decided on certain innovations in the competition field, among the most sweeping being the holding of the "Flight" Cup event for petrol-powered models at Cranwell Aerodrome. This venue, situated in the heart of Lincolnshire, is undoubtedly ideal for such a competition, the aerodrome alone being one of the largest in the country, with a magnificent stretch of tarmac running right across the field, and flat, open country for miles around.

Through the generosity of the Commanding Officer, Air Vice-Marshal J. A. E. Baldwin, C.B., D.S.O., O.B.E., and the hard work of our old friend, Warrant Officer P. R. S. Gutteridge, well known in connection with the successful model section at Cranwell, the event this year was one of the best staged "power" contests I have yet attended. Of course, due regard must be paid to the advantages on hand here in the form of practically unlimited "helper" squads of Air Force apprentices, who were seen everywhere efficiently shepherding and policing the crowd. A large car-park, well away from the contest area, was well packed with cars, and rows of chairs had been provided for the comfort of spectators.

Loud-speaking equipment, though hardly powerful enough, was very useful in the organisation, and altogether, one was struck by the quietly efficient manner in

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CUP COMPETITION

Reported by CLUBMAN



biggest and dirtiest black cloud I think I have ever seen, and a terrific cloud burst looked very imminent. To see the way the crowd just vanished was amazing—one would have thought the hat was being passed round for a collection! (I understand that this section of the country is noted for its sudden and tempestuous rainstorms). Well, it didn't belie its reputation this time, for it just chucked the water down, and it certainly looked as if it had set in for the day.

However, after some time, things did clear a bit, and a start was once again made to complete the competition—only, however, after a number of cars had been returned to the car-park. I thought it rather inconsiderate of the offenders to bring their cars right up on to the tarmac, without obtaining permission, or considering the event or competitors.

It was soon evident, however, that the weather was not going to be kind long enough to give any chance of finishing the competition as scheduled, and a meeting of the competitors was called to discuss the matter. After discussion it was proposed and agreed that one flight would count for the purpose of the event, and the remaining

flights for the first round were completed. This was a pity, as the affair started off so promisingly, and with a fair deal by the Weather Clerk would have been intensely interesting and instructive. However, it is no joke having the water running down one's neck for hours on end, and everyone was well and truly soaked long before the end of the flying.

Congratulations are due to the winners, and, in fact, to all who flew, likewise to the S.M.A.E. officials who had travelled under difficulties to take charge of the event—and had a most trying journey back to London!

After the conclusion of the contest, Mr. Coxall arranged to try and better the British Power Model Record. Preparations were made for a long chase, and the model set off to a fine flight. Wind drift, however, took the model out of sight in just under seven minutes, and it was obvious that one required a dead calm day to get the figure any higher.

Mr. Reason, of Leeds, was announced as the third man, but a recheck since has caused a rearrangement of the placings, and he goes back to fourth.

And so, I said goodbye to Cranwell after my first visit,

YOU SHOULD JOIN THE N.G.A.—AND 'FLY WITH CARE'

and it is my sincere hope that we may have more events staged here, with better luck from the weather, and knowing that under the care of W. O. Gutteridge and Co. we can be assured of really good, efficient management. Undoubtedly, the holding of an event of this nature was popular, and staging it at this site made it possible for many more enthusiasts to enter than would have been the case if staged at Fairey's.

Club.

		Reg. No.	Workmanship and finish.	Originality in design.	Flying points.	Take-off.	Landing.	Bonus.	Total.
1.	J. M. Coxall, Hayes ...	D2-2	9	9	55	19	20	6	117
2.	A. J. Hayes, Surrey ...	CB-2	8	4	55	20	20	5	112
3.	C. R. Jeffries, Midland ...	C3-2	10	10	45	19	20	5	107
4.	N. P. Reason, Leeds ...	H4-3	6	8	50	20	17	5	108
5.	— Crosthwaite, Darlington ...	D7-1	6	5	47	20	20	5	103
6.	J. Wainscot, Cranwell ...	C4-5	5	5	41	20	20	5	96
7.	J. R. Blunt, Brighton ...	AB-3	8	7	55	15	4	5	94
8.	E. P. Anderton, Leeds ...	B2-6	7	8	51	5	15	5	91
9.	G. A. Gardner, Birmingham ...	H4-7	7	—	47	15	17	5	91
10.	R. J. O'Neil, Surrey ...	AC-5	5	5	63	10	12	5	90
11.	— Vanville, Leeds ...	H4-5	8	3	28	15	18	5	77
12.	D. R. Robertson, Unattached ...	F2-9	4	2	30	20	16	5	77
13.	W. G. Shadford, Hornchurch ...	BC-3	7	—	45	5	14	5	69
14.	I. C. Lucas, Brighton ...	A7-2	5	—	28	15	16	5	69
15.	H. Wells, Blackpool ...	D3-7	8	—	12	20	16	5	61
16.	E. A. Ross, Northern Heights ...	E2-5	10	10	7	10	—	5	42
17.	J. Worden, T.M.A.C. ...	AA-6	9	9	5	12	—	5	40
18.	— Wesley, Sheffield ...	D4-2	9	5	7	6	—	5	32

LETTERS TO THE EDITOR

DEAR SIR,

I am indeed pleased to see that The Clubman has replied in such spirited tone to his critics. Wouldn't sport, and work, be a very dull affair if everyone were to be so serious. Personally, I quite enjoy The Clubman's article. As a lone modeller I have quite a lot of "back chat" slung at me—sometimes not too kind, and if I had taken it to heart I would have given up a most interesting hobby long ago. However, I have learned to take these things in good part *always*, and this is the advice I offer to the disgruntled few who indulge in this very delightful hobby of aero-modelling.

More power to your pen, Clubman.

Yours faithfully,

JOHN TAYLOR

DEAR SIR,

With reference to Mr. Brown's letter in the July issue I do not think my notes suggest any opposition to lightly loaded models as such. I only wished to point out by the official data supplied that loading and speed are dependent on each other.

I also said, too, that I should be glad to see a light-weight model produced that would fly at 45 m.p.h. and over. The difficulty arises that, as speed increases, power also increases. This means stronger construction, and thus more weight, and so on in a vicious circle.

With regard to Mr. Brown's facts about the loading of 10.25 oz. per sq. ft., which should give the estimated speed of 20 m.p.h. (approx.), and his performance speed of 81 m.p.h., I should think that the stiff breeze at Hurlingham, of perhaps 10 m.p.h., may account for the discrepancy.

However, I hope he will not think that I mean to discourage; we want heaps more enthusiasts, whether light or heavy-weight fans, on the racking track next September.

Yours sincerely, R. L. ROGERS.

Is your Petrol Plane registered with the S.M.A.E.—and are you insured against Third Party Claims? See N.G.A. form on back page of this issue.

DEAR SIR,

I have read with great interest the correspondence on speed models which has appeared in your last two issues. I can but agree with Mr. Brown's remarks that the speed formula is of little account. My speed model, "Jester," clocked just under 95 m.p.h. in last year's Flight Cup, which incidentally gave me first place. As its loading is a little under 20 oz. per square foot, $s = \sqrt{20 \times 6} = 4.45 \times 6 = 26.7$ m.p.h., according to the formula. In point of fact, the "Jester" is only a clipped wing heavy-weight with a thick wing section and unstreamlined. On a special racer the performance figures would doubtless be much higher.

Another objection to the projectiles advocated by Mr. Rogers is that if there is a slight breeze they are unable to take off down wind or cover the course upwind, which is a great disadvantage in our climate. My model has actually taken off down wind and covered the course in a wind of about 15 m.p.h.

Due to the tendency to heavily loaded models in the past, expense and difficulty of construction have caused a severe decline in the popularity of speed flying in this country. With the advent of the lightly loaded model, which I am pleased to note you are sponsoring in your next issue, the number of entrants in the speed contest will begin to rise, and in my opinion performance will in no way suffer.

I. C. LUCAS.

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A 41 in. SPAN CABIN MONOPLANE

Designed by ALAN WEY

THE design of this model has been carried out on quite realistic lines, and some original features have been introduced in its construction. A compressible-strut undercarriage, hinged tail-plane, and hooks which have been made easily accessible, have all proved very efficient and well worth the extra time taken in constructing them.

The calculated air speed of the aircraft is in the region of 15 m.p.h. It has therefore necessitated construction to be carried out on robust lines, and it can be stated here with satisfaction that it has withstood the wear and tear remarkably well.

Experiments have shown that by using a slightly larger propeller (i.e. 18 in. diameter, 24 in. pitch) to that shown in the photographs, better flights were obtained. This necessitated 88 per cent more rubber, and thus increased the wing loading, which is now about 6 oz. per square foot, the total weight being 9 oz.

Rubber Motors.

Each of the three motors consists of four strands of $\frac{1}{8}$ in. x $\frac{1}{20}$ in. thick strip rubber, 82 in. in length.

Undercarriage.

This component is of unusual design, the rear legs being compressible whilst the front ones act as ties. Shape about 20 in. hard balsa to a streamline section (see Fig. 6). The tie legs are about $5\frac{1}{2}$ in. long, and the ends are chamfered to sit on the fuselage to give the correct splay. Next make two streamline pasteboard tubes about $3\frac{1}{2}$ in. long by wrapping some cartridge paper round your strut several times, pasting and tying round with cotton. When dry, the core is forced out and sandpapered down until it is an easy fit in the tube. A fair amount of play is advisable, as weather conditions are liable to make the wood swell. The upper ends of the struts are filled up and chamfered off, similar to the front legs. Two coiled springs, 1 in. long normally, are slipped into the tubular legs, the lower solid leg sliding up on to it. A section is shown in Fig. 7. A cut back of the sliding leg, about $\frac{1}{2}$ in. long, is necessary to provide for a stop. On the upper ends of all four legs 18 s.w.g. wire attachments are securely bound on with thin copper wire and soldered (see Fig. 8). On the lower ends similar wires are fixed, about $1\frac{1}{2}$ in. projection to take the wheels on the front legs and $\frac{3}{8}$ in. on the rear legs, on to which is bound and soldered a short piece of brass tube, which affords a pivot for the axle (see Fig. 9). Celluloid wheels, 2 in. diameter, are secured on the axle by a steel cup washer either side. Strong elastic bands, passing under the fuselage, prevent the legs from coming adrift from their sockets.

Tail-plane and Fin.

In order to trim the model whilst testing, the 'plane has been made adjustable, so that its angle of incidence may be altered, thus doing away with elevators, which complicate the construction. The chord section is symmetrical, the maximum thickness to chord being a ratio of 7.5 per cent. Below are a set of figures relating to a 10 in. chord section. The various thicknesses are given

at points taken as a percentage of the chords. The different sections can thus be easily worked out.

Thicknesses (in in.) ...	5%	10%	15%	20%	30%	40%
	.4	.54	.64	.70	.74	.77
Thicknesses (in in.) ...	50%	60%	70%	85%	100%	
	.88	.90	.90	.92	.95	

Fig. 10 shows the plan of it and the necessary details. It is made up in two sections, the two centre ribs being joined by shaped balsa blocks. Both leading and trailing edges are cut from $\frac{1}{8}$ in. sheet and gusseted to the centre ribs. Two lengths of $\frac{1}{8}$ in. square spruce or birch serve as a compound centre spar and run the whole span of the 'plane, being notched into the ribs, and balsa tips each end. Two small lugs are glued to the front edge (see Fig. 10 detail).

The fin is of similar chord section, and its construction very much the same. Fig. 11 gives the general outline of it. Small fairings are fitted at the front and back, and short birch dowels inserted. A fairing and corresponding stool to take these are cemented to the top of the fuselage (see Fig. 12). A hingeing device is incorporated in the front one, and a pin passing through it and the two lugs on the tail-plane acts as a pivot. The back of the 'plane is secured by a strong elastic band, passing under the fuselage and over two wire hooks, and an incidence block under the rear gives the required adjustment. Both tail-plane and fin are covered with Jap paper and doped.

Fig. 18 gives the necessary dimensions, and the chord section is a Clark Y type. A replica set of figures used for a 10 in. section are given below. As before, the thicknesses are given at points taken as a percentage of the chord.

	0%	2½%	5%	10%	15%	25%
A260	.600	.605	.700	.840	.918
	.35%	.50%	.65%	.80%	100%	
	.926	.903	.868	.800	.683	
B2½%	.5%	10%		
		.803	.650	.500		

A—Upper curve in in. B—Lower curve in in.



The wing is of a cantilever type and has two spars $\frac{1}{8}$ in. x $\frac{1}{4}$ in. running longitudinally. The ribs are cut from $\frac{1}{8}$ in. sheet. In this particular case, as the wing is over 8 ft. span, the spars have to be in two halves, which are joined together in the centre by a three-ply fishplate glued each side. Fig. 15A shows the fishplate, which is shaped to agree with the dihedral. Fig. 15 shows the centre section built up with its numerous gussets, the top section being covered with $\frac{1}{8}$ in. veneer. The top surface of the wing for one-third the distance back is covered with $\frac{1}{64}$ in. veneer. The incidence of the wing is 4 degrees, measured from the thrust line, and the wing is adjusted to sit firmly on the top of the fuselage by means of an incidence block glued to the underside.

For attachment, the usual wire hooks were first used, but later, when the wing was rebuilt, they were omitted and a continuous rubber band was used. Wire hooks sometimes prove disastrous to a fuselage when a machine crashes, and the wing receives a nasty wrench.

Nosepiece and Airscrew.

See Fig. 16. This is of the usual triple-gear type, with a free-wheeling device behind the propeller, concealed by a tin cowling, which is screwed on. The hardwood balsa part is made in two pieces, the front recessed to take the ball races and washers. When the gears are assembled the two halves are cemented together.

The specification for the airscrew is as follows: Diameter 18 in., pitch 24 in. This component, to which often not enough attention is paid, is very important. For the individual who wishes to carve his own, a full dimensioned drawing is given (see Fig. 17). It is carved from a block of hard balsa wood, and the finished blades are covered with silk and doped. For the not-so-experienced any dealer or specialist in propellers will supply one to the given specifications, or may even have one in stock. The airscrew is secured on the shaft by a cup washer on either side. A spinner which can be taken off when winding is doweled on to the boss, thus completing the assembly.

Fuselage.

Fig. 1 shows the side elevation and projected half-formers. A jig, which can be recommended for a fuselage of this type, was used. After the formers have been cut out of $\frac{1}{8}$ in. thick sheet balsa, and strengthened across the top and bottoms, cut out of stiff card, pieces to correspond with the inside shape of the formers. Attach these temporarily with four small slips of paper (see Fig. 8). Next procure a perfectly straight stick of hardwood about 8 ft. long and $\frac{3}{8}$ in. square. Mark out on the cardboard centres, now firmly glued in place, $\frac{1}{8}$ in. squares in their respective positions. With a razor blade, or, better still, a $\frac{3}{8}$ in. chisel, carefully cut out the holes and thread them on the stick, and proceed to set up in the correct positions, glueing them firmly on. The jig should be held firmly in a vice whilst attaching and cementing the longerons in position. When thoroughly dry, cut away the cardboard centres and extract the stick. Trim off the ends and cement rear block in position. Fig. 4 shows this, also the swing out hooks, which enable the rubbers to be easily hooked and unhooked. A wire skid with a small bushed plywood wheel is also soldered to this unit. Next, reinforcements, bracing, gussets and hardwood balsa blocks (16 s.w.g. brass tube inserts $\frac{3}{8}$ in. long, to take the undercarriage legs) are cemented in, also the ten window frames, five each side, carefully cut out from $\frac{1}{8}$ in. sheet (see Fig. 5). The three windows at the front are fitted in by grooving the struts, the two small side windows requiring balsa fairings attached to the top of No. 8 former.

The entire covering of the fuselage is $\frac{1}{64}$ in. balsa veneer. The top and bottom may be done in one piece, also the curved portion at the front. The sides are covered in three pieces, the shapes being indicated by dotted lines in Fig. 1. An outer skin of white Jap paper is pasted on, and finally two coats of aluminium dope applied, thus completing a job which is very strong and quite light.

FULL SIZE PLANS OF THIS PLANE ARE PRESENTED WITH THIS ISSUE. LIST OF MATERIAL REQUIRED IS ON PLAN

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SOLID SCALE MODELS

By B. CARVER

THERE is no doubt but that the "solid" phase of the modelling game is gaining fresh adherents every day. Evidence comes to me from all parts of the country of the increasing interest taken in this work, and I am glad to learn that several clubs are now definitely encouraging the construction of non-flying models.

From the Press Secretary of the Ossett and District Model Flying Club comes a most interesting letter. It appears that this club found solid activities at a low ebb, and in their exhibition, held in February, only one solid job was shown. And now, friends, "here is the rub." I learn that, although the finish of the solitary solid left something to be desired, the interest of members was aroused by the obvious interest of the public in this small, solitary example of the modeller's art. The amount of attention paid to this model by visitors to the exhibition, caused several enthusiasts who had previously ignored solids, to realise that "there must be something in these little fellows, after all!" All this news is particularly welcome to the writer, who, as regular readers will recall, has repeatedly urged the clubs to take more interest in solids, especially when they are seeking publicity and recruits. The Ossett Club's experience just bears out what I have previously stated—that solid models have far more appeal, where the general public are concerned, than the best "Durators" that were ever exhibited. I sincerely hope that club officials will take this to heart and seek to encourage the building of non-flying jobs, and I pass on to them the recent scheme evolved by the Competition Secretary of the Ossett Club, under which every member was required to construct a different type of R.A.F. machine. I trust the members rallied round



Michael Russell, aged 8, with some of his "solid" models—made with plasticine! Note the control

tower, "aerodrome office," and the "Lysander"!

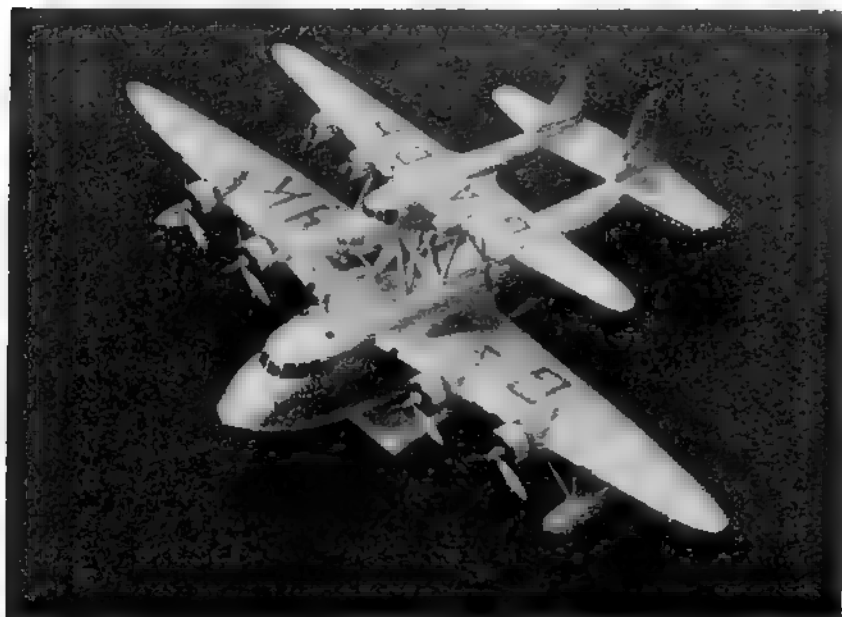
in earnest, and that the club will have a most interesting and instructive display of solids at their next exhibition.

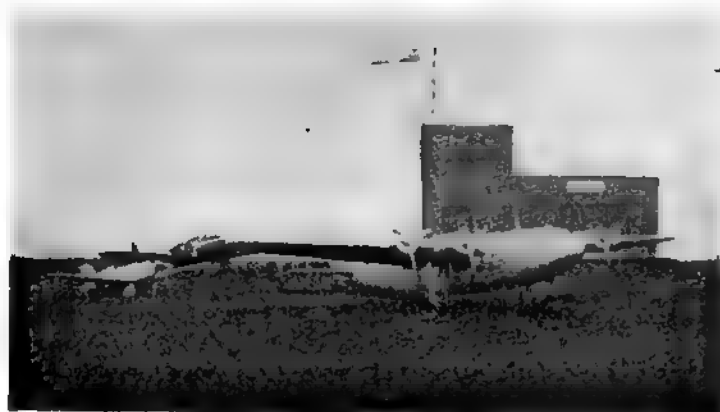
Before passing on to construction of models, I must pass on to you a hint received from your Editor. Many correspondents have expressed a wish for more space devoted to solids in THE AERO-MODELLER, and I understand that their wishes will soon be realised. I hope that this increased space will mean increased numbers of enthusiasts and more readers. Remember, the larger the circulation, the more your Editor can give you for your sixpence. So, please, don't borrow the "other fellow's," buy a copy of your own, and help us to give you more pages than ever!

I have received two photographs from Mr. A. Curtis, of Leeds, and regret that they are not really suitable for reproduction. However, Mr. Curtis clearly appreciates this, and rather plaintively remarks that he is short of a good camera. I would like to say that Mr. Curtis has made a very creditable effort in photographing his models with the simplest type of camera, and I hope he will soon obtain his "good camera" when, I am quite certain, he will be sending us some first-rate illustrations. Thanks, Mr. Curtis, and good luck!

Mr. Brooks, of Barking, sends a photograph of the Mayo Composite, and asks me to forgive any poor finish, as the models were finished in Crisis Week, last September. Well, that would be the last Crisis but one, I think, and rather a sticky one, too. Nevertheless, I see little to complain of in Mr. Brooks' models. The finish is much better than many examples I have seen, whilst the lettering is especially good. Mr. Brooks has an ambitious programme in hand, and I can only hope that we are not going to experience a crisis every time Mr. Brooks finishes a model!

Now, some details. The Composite is to a scale of $\frac{1}{16}$ in. to 1 in., and took approximately one month to construct. Pilots' cabins are cut out, and Plasticine pilots are at the controls of both 'planes.





Another model airport, built by Mr. C. W. Kurrey, of Seemee. The models are an "Ensign," a "Messerschmitt," and "Airspeed Envoy."

Mr. Brooks informs me that he and a friend are engaged on a series of models illustrating the development of the aeroplane. Up to date, Mr. Brooks has completed Lilienthal Glider, Wright Biplane, Bleriot Cross-Channel Monoplane, Vickers' "Gun Bus," the first "Moth," Handley-Page "Helena," Schneider Trophy winner, D.H. "Comet," D.H. "Albatross," and Mayo Composite. Mr. Brook's friend has contributed "Camel," Gloster "Gladiator," and "Hurricane." If I may offer a suggestion, surely the tri-plane should find a place in this collection, also a Parasol type? There are, of course, several other distinct types which might be included, but I think the two I mentioned really worthy of a place in the collection, as they are in no way freaks. Mr. Brooks informs me that the collection is to total twenty models, so it is possible that he has already decided on the inclusion of the types suggested. I am promised photographs of this collection when they are obtained, and I look forward to including these illustrations in some future number.

In conclusion, Mr. Brooks adds that he and friend intend following my recommendation for the construction of a series illustrative of the various service types in present day R.A.F. Also, Mr. Brooks wishes to convey his best wishes to Mr. Thomas, whose Composite model was shown in a previous issue.

Many modellers are going to be very jealous when they are shown collections of the types undertaken by my correspondent, and I would urge all who are really interested in aeronautics, full and part scale, to expend some of their spare time in building for themselves a collection of scale models, which they will treasure in future years. Really, you know, this solid game is worth while—it results in your possessing something of permanent or increasing value and interest. A factor which, I am glad to know, is being realised by a steadily increasing proportion of aero-modellists.

You really must forgive me if I now repeat some instructions which have appeared in previous articles, but I feel that too much stress cannot be laid on the importance of the actual finish of the model. Almost every day I see examples of otherwise attractive workmanship utterly ruined by incompetent work in the painting and lettering. Often, I think, it may be less a matter of incompetence than of patience. If the cause is incompetence in this part of your work, then there is only one cure—practice painting and "doping" until you become proficient. Get some scrap wood and practice putting

finish on that. If the trouble is (as is the case with so many of the younger modellers) impatience, then you should remember that it is a ridiculous waste of time to take pains in the shaping of scale components, only to destroy the value of their faithful modelling and scaling by careless, hurried painting. Poorly finished models are the rule rather than the exception, and I do want to see this state of affairs altered. Next time you are finishing a model remember the following hints.

Balsa is an ideal wood for scale models, as it is so easy to carve and sand, but it does call for rather more pains if a perfect finish is to be attained. There are several ways of "filling" the wood. You may either coat it with cellulose cement, smoothed over the surface with the fingers, or you may give the wood a good coating of office paste. When this coat is dry, rub the surface carefully with the finest grade of sandpaper you can obtain. I say "carefully"—if you are not careful, you may sand right through the surface at certain points, which will show as patches when the paint of dope is applied. Paint or dope should be applied in thin coats. Many thin coats are to be preferred to two or three thicker coats, and remember to sandpaper well after each coat. It might be said that "it's not what you put on, but what you rub off that gives you finish." If you are making a shadow-shaded model, use poster colours; these will give you the desired matt finish, or special matt cellulose.

A Hawker "Hart," built and photographed by Mr. J. R. Cresswell, of Colchester.



lining and lettering often spoil an otherwise well-finished model. Only practice will enable you to do this work properly. You should practice printing letters and numbers on paper until you become proficient. Remember, it is only practice that makes perfect—a hoary old adage, but still full of truth. Lettering painted direct on the model looks much better than cut out letters pasted on the model, but you cannot expect to print good letters and numbers on a model, unless you first become quite expert at doing this work on paper.

"Targets" look much better if they are painted directly on the model, and this work is nothing like so difficult as you might imagine. If you first lightly score the rings in the surface of the 'plane, using a pair of dividers as a compass, the faint score will be sufficient to guide your brush accurately around the circles.

Cabin windows, etc., should be impressed on the model by means of a hardwood tool cut to the required shape. This impression should be made after the final surface painting. Windows should then be painted in either streaked blue and silver, or black, according to individual taste. Personally, I do not like the appearance of the black window.

THE NORTHERN HEIGHTS GALA DAY

*Mrs. Thurston at the microphone—
with Col. Moore-Brabazon on left and
Dr. Thurston on right.*



FOR once the celebrated Northern Heights weather failed to materialise, and for most of the day a strong wind was blowing, and in the afternoon there were heavy showers. Nevertheless, "Rip" and his assistants kept everything running smoothly, and they must have been gratified to find that there was a record number of entries in several of the competitions.

Before lunch the Popular Contest and the Open Duration were run off. The averages in the latter were very creditable indeed considering the strength of the wind, and the percentage of crack-ups was very low. After the Wakefield Trials aero-modellists appear to be getting used to the wind!

At 2.30 Dr. Thurston, without whom no meeting would seem to be complete, introduced Lieut-Col. J. T. C. Moore-Brabazon who, in addition to being a vice-president of the S.M.A.E., was one of Britain's pioneer airmen. After a short speech, Lieut-Col. Moore-Brabazon declared the meeting open, and together with Dr. and Mrs. Thurston inspected the models lined up for the Concours d'Elegance.

Dr. Thurston said:

"I have the honour, and almost superfluous task, of introducing to this gala meeting of the Northern Heights Model Flying Club, Colonel Moore-Brabazon. It is now thirty years or more since he made those historic flights which gained for him the title of Pilot No. 1 of the British Empire. Since those days he has occupied a succession of important positions in aeronautics, including that of President of The Royal Aeronautical Society, the oldest aeronautical society in the world. He has honoured aero-modellists by becoming a vice-president of the Society of Model Aeronautical Engineers.

"I would inform Col. Moore-Brabazon that aero-modellists divide flying machines into two classes: *Aeroplanes that matter*, and full-size aircraft.

"I have much pleasure in extending a cordial welcome to Colonel Moore-Brabazon, and in calling upon him formally to open this gala day of the Northern Heights Model Flying Club."

Replying to Dr. Thurston, Col. Moore-Brabazon said:

"I have come here this afternoon at the request of Dr. and Mrs. Thurston, in order to pay tribute, not only to the S.M.A.E., but to the Northern Heights Model Flying Club. This club has done great work in holding these galas, and their meetings have become to *model* flying, what Hendon was to full-size flying.

"I am brought here as a sort of relic of the past. It is over thirty years since I won the *Daily Mail* prize for a mile flown in an all-English aeroplane. I am, so to speak, a human pterodactyl.

"I am an onlooker at aviation. I see most of the

game, and it would be useless for me to tell you how disappointed I am at the way this great discovery and science of flight has been used. Mechanical science has outstripped political wisdom. Aviation is an armament.

"Let us, however, dismiss military aviation for the moment and turn to civil aviation. Here much needs to be done. Commercial aviation, in Mr. Winston Churchill's words, still cannot 'fly by itself.'

"Machines must be cheaper and running costs lower.

"Power plants using petrol are also very unsuitable and dangerous.

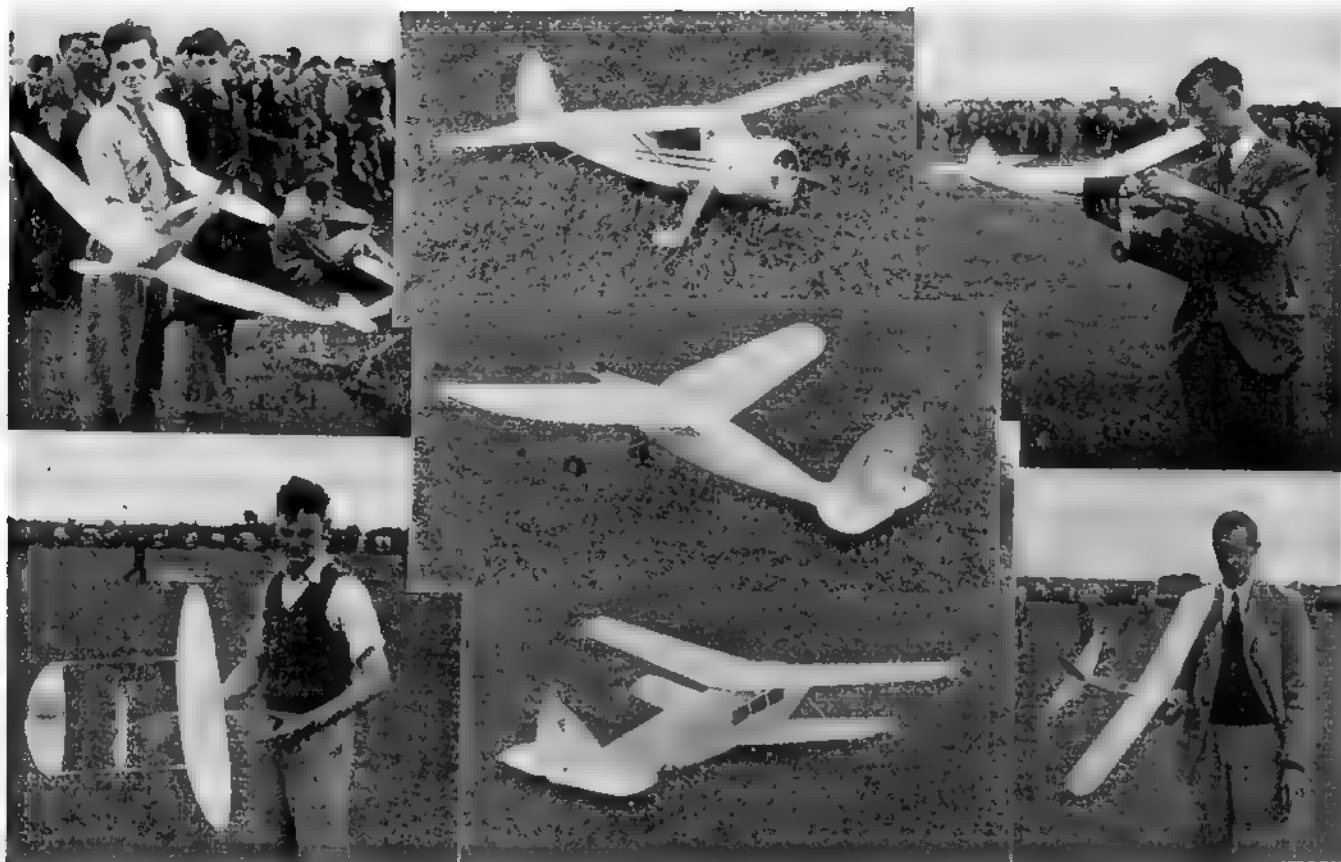
"I say all this not to retract from the great advances that have been made, but to show you what a lot there is still to be done, and because I don't want you young people to get into your heads that because of the great firms existing to-day, and of the great Air Ministry, that there is little chance of contributing real advances and discoveries from your models. There is a great chance, and I want you all, when you scheme out your designs for a model and start building it, to say to yourselves: 'Every one else is wrong, only I am right.' That is the pioneer spirit that will lead to real contributions to the science.

"There are many interesting sides to aviation, but this type of meeting is nothing but joy. It takes me back to the time when we dreamt of flight, and were enthusiastic at the performance of our models.

"I can't tell you how I have enjoyed the day. Thank you for asking me, thank you for listening to me. Although the meeting has been going full swing since eleven I now declare the gala open."

Mrs. Thurston also made a speech:

"Surely everybody here will wish to join with me in expressing regrets that Mrs. Moore-Brabazon has been unable to be present with us to-day. It is a matter of common knowledge that when any experienced pilot undertakes a long distance flight, one of the first things he does is to secure the services of a first-rate navigator; one who knows his job inside out, one who can be relied upon in the worst emergencies, and one who always 'comes up' smiling. Col. Moore-Brabazon is no exception to this rule; when he started on the longest flight of his life, the dual control one of matrimony, he secured Mrs. Moore-Brabazon as navigator. How well she has succeeded at her job is proved by the fact that not only



(Top left) E. Ross with his Coronation Cup entry, which was second, and second in the semi-scale section of the Concours.

(Bottom left) Mr. Mackenzie with his record-breaking pusher.

(Top right) Bernard Shaw and his Eaglet, which was second in the Petrol Section of the Concours.

(Bottom right) Mr. Curwen, with his 38 in. span Midget.

(Centre) Mr. Sharvell's petrol model, which won the Petrol Section of the Concours.

(Top) Another beautiful job of Mr. Sharvell's.

(Bottom) Mr. Worden's petrol biplane.

has No. 1 Pilot of Great Britain weathered the storms and line squalls of a lengthy career as a politician, but he is able to give points to younger folk every year at Swiss winter sports. As Mrs. Moore-Brabazon has lived so long in the charmed inner circles of aviation, it is quite certain that her observations on modern aero-models would be interesting, instructive, and amusing, so may we all send a special message to Mrs. Moore-Brabazon to say that we hope she will be able to be with us on some future occasion.

"Col. Moore-Brabazon's speech has been an inspiration. It seems, too, that special note should be made of the message sent by Mr. Zaic, which is printed in the programme, and has been, so wisely, placed in italics by the organisers. He stresses the importance of perfection of detail, and the unswerving pursuit of that aim undeterred by temporary and passing successes or failures.

"Colonel Moore-Brabazon, we thank you for your interest, your presence, and your speech, and we hope this is but the first of many future visits."

In the Petrol 'Plane Section Mr. Sharvell won the M.E. Cup for the third successive year with a beautiful planked job, fitted with an Ohlsson. Also in this section was a biplane (Brown Junior) belonging to Mr. Worden, and a tiny 38 in. model powered with a 1½ cc. Hollam engine, belonging to Mr. Curwen, of the Bromley M.A.C. In the general flying section Mr. Rees (N.H.M.F.C.) had a Coronation Cup semi-scale model

fitted with a retractable undercarriage, and there was also a very nice glider by Mr. Pope (Edgware M.A.C.). In the novelties, Mr. Finch's sky-writing apparatus, illustrated by graphs to show how it is done, attracted great interest. This device, excluding the smoke-box, weighs only ½ oz. more than the normal nosepiece. Also in this section were two helicopters, and the framework of a model which appears to be made from scrap bamboo and firewood. A placard announced it was the Wakefield winner, A.D. 1800, and that the power was six strands of liquorice! In the Scale Section, Mr. Towner won first prize for the third time running with his Airspeed Envoy, painted in the royal colours.

After this followed the inter-club team contest for gliders. Competitors found winch launching to be exceedingly difficult in the high wind, and Mr. Baines (Dagenham M.A.C.) is to be highly commended for his flight of 121 sec., which was the best in the contest.

After a severe shower of rain had postponed the start of the pusher contest, conditions began to improve, and two British records were set up. Mr. Howard Boys did a flight of 80 sec. R.O.G. with his tailless model, and Mr. Mackenzie, the eventual winner, did a flight of 114.4 sec. R.O.G. with his O-I-P-I pusher, which was of particularly clean design. Mr. Howarth, who came third, must be congratulated, as he was probably the youngest competitor at the gala-day.

As time was by now getting short, the Coronation

Cup, the Scale Model Contest and the Women's Contest, were run off more or less simultaneously. In the former, Mr. Mackenzie, with a model which, if I may put it that way, was slightly less semi-scale than the others, proved his point by averaging 89.8 sec. All the other competitors found the take-off boards too short, and were unable to get off, with the exception of Mr. Ross, whose machine resembled a cross between a "Battle" and a "Spitfire"! In the Scale Model Contest the long run of successes of Leopard Moths was brought to an end by a 1911 Caudron flown by Mr. G. Day.

Finally came the prize-giving. Mrs. Thurston introduced Mrs. Bell, the wife of the hon. secretary of the Northern Heights Club, who presented the winners with their prizes. In passing, I may say that never has such an attractive array of prizes been offered for any single meeting in this country. Thus closed what was the best organised and run Northern Heights Gala. Well done, "Rip"!

RESULTS.

NEAREST TO 50 SEC. 89 entries.

1. R. L. Rogers, N.H.M.F.C., 48.25 sec.
2. P. Dawson, Cranwell M.A.C., 47.8 sec.
3. J. Rees, N.H.M.F.C., 47.5 sec.

NEAREST TO 100 SEC. 23 entries.

1. H. W. Bexley, Luton M.A.C., 100.0 sec.
2. R. Brench, Hayes and District M.A.C., 98.2 sec.
3. S. R. Crow, Blackheath M.F.C., 91.5 sec.

OPEN DURATION. 185 entries.

1. R. Mackenzie, Blackheath M.F.C., 211.0 sec.
2. R. Hinks, Luton M.A.C., 187.2 sec.
3. J. Disney, N.H.M.F.C., 151.5 sec.

CONCOURS D'ELEGANCE (PETROL MODELS). 12 entries.

1. M.E. Cup, R. Sharvell, Hayes and District M.A.C.
2. Bernard Shaw, Surrey M.A.C.
3. E. Ross, N.H.M.F.C.

GENERAL FLYING.

(a) Gliders.

1. J. Pope, Edgware M.A.C.
2. J. Rees, N.H.M.F.C.

(b) Semi-scale.

1. J. Rees, N.H.M.F.C.
2. E. Ross, N.H.M.F.C.

(c) General Flying.

1. — Buffery, N.H.M.F.C.
2. Mrs. Rees, N.H.M.F.C.

FLYING SCALE MODELS. 22 entries.

1. H. J. Towner, Brighton District M.A.C. (Envoy).
2. L. Hastings, P.M.A.L. (Hawker Fury).
3. R. Dyer, Hornchurch M.A.C. (Spitfire).
- J. Pope, Edgware M.A. (Comper Swift).

NOVELTIES. 20 entries.

1. H. J. Finch, Rye A.C. and Brighton and District M.A.C. (Sky-writing).



Mrs. A. G. Bell presents THE AERO-MODELLER Cup to Mr. R. Mackenzie.

2. — Collinson. (Working scale model of a Ryan Sportster).
3. T. Clarke, N.H.M.F.C. (Remote flexible control for a helicopter).

INTER-CLUB TEAM CONTEST. 11 entries.

1. Fairey Cup, Dagenham M.A.C. 846.8 points.
2. Northern Heights M.F.C., 256.2 points.

CORONATION CUP. 6 entries.

1. R. Mackenzie, Blackheath M.F.C., 180.8 points.
2. E. Ross, N.H.M.F.C., 60 points.
3. J. Ross, N.H.M.F.C., 51 points.
- R. Moore, Watford.

WOMEN'S CONTEST. 7 entries.

1. Mrs. Rees, N.H.M.F.C. Bonus points 77. Flying time, 87.0 sec.
2. Mrs. Baines, High Wickham M.A.C. Bonus points 70. Flying time, 75.0 sec.
3. Miss Saunders, Southampton M.A.C. Bonus 58 points. Flying time, 46 sec.
4. Miss Hicks, Harrow M.F.C. Bonus points 55. Flying time, 85 sec.

PUSHER CONTEST. 9 entries.

1. Hall Trophy, R. Mackenzie, Blackheath M.F.C., 127 points.
2. I. Hall, N.H.M.F.C., 116.85 points.
3. F. Howarth, Harrow M.F.C., 110 points.
4. C. W. Needham, Bristol M.A.C., 108.8 points.

FLYING SCALE. 12 entries.

1. Flight Trophy, G. Day, N.H.M.F.C., 114.8 points (1911 Caudron).
2. C. Wakefield, Barnes M.A.C., 110.25 points. (Leopard Moth).
3. S. C. Crow, Blackheath M.F.C., 105.8 points. (Leopard Moth).

AERO-MODELLER Cup for the Champion of the Meeting: R. Mackenzie, of Blackheath M.F.C., with 8 firsts = 9 points.

N.B.—All the above were awarded prizes.

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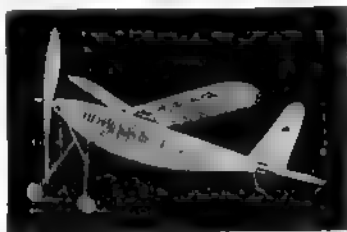
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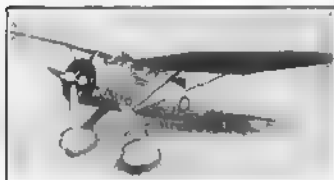
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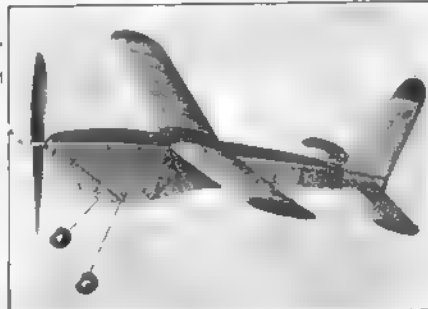
"NIPPY"

WING-SPAN
30 in.

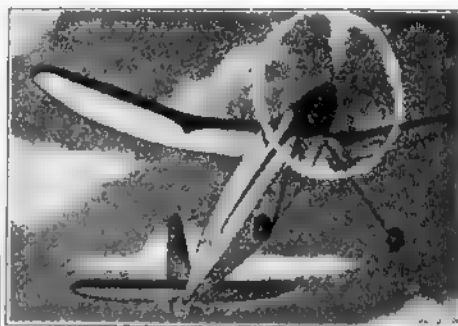
LENGTH
24 in.

Average duration
80-120 seconds

Finished propeller, free-wheeling shaft, balloon wheels, rib outlines clearly printed on M.A.T.A. balsa, balsa strip, wire, tissue, brass bush, cement, dope, tissue-paste, semi-finished nose block, FULL-SIZE PLAN instruction sheet, aluminium tube, washers, and eight strips of rubber.

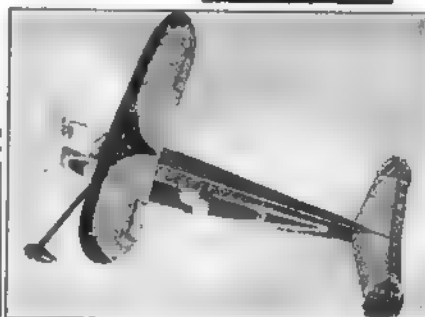


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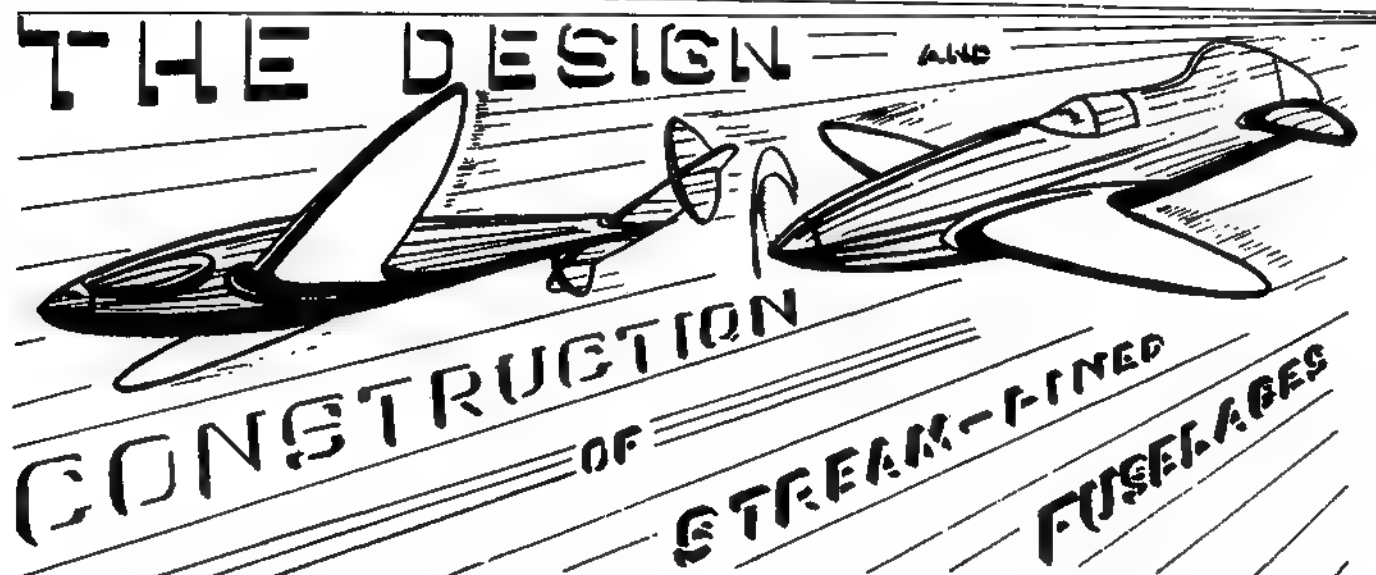
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ELITE MODEL AIRPLANE SUPPLIES
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IN the past streamlining in model aircraft has been sadly neglected. It has generally been considered that the low speeds at which duration models operate do not justify its use. However, during the last two years, with the increased weight rules, and consequently higher speeds, the streamliner has been able to show its superiority.

From my own experience, I believe the streamliner will gradually replace the more conventional "slab-sided" machine, as contest rules become stiffer.

In this article I shall describe fuselages suitable for Wakefield models, as the best and most popular type on which streamlining can successfully be employed.

First, we must decide the outline shape. There are three main types, as shown in Sketch 1. For my own choice I prefer the symmetrical, although the high thrust line type is well adaptable to a parasol wing ship. Having not conducted any experiments with lifting fuselages, I shall not attempt to discuss the merits or demerits of this type. A method of laying out the shape of the forward portion of a fuselage is shown in the Sketch 2. The rear part can be drawn by means of a strip of birch suitably bent, until a graceful curve is obtained, around which a pen or pencil line may be drawn.

Now we come to the section to be used, circular, oval, pear-shaped, or elliptical. Circular and elliptical are probably the most efficient. Round sections present no problems, but the drawing of ellipses very often "stumps" the average builder. He tries the "endless piece of string" method, and decides that it is not very accurate, then the trammel method, but finds that his french curve refuses to connect all the points. He might try a system using a series of arcs, but these are not strictly true, and can only be drawn in one height/width ratio. I believe this is one of the reasons why modellers stick to designing rectangular fuselages. It was whilst trying to work out a new method that I discovered the system shown in Sketch 3, which has proved very satisfactory. It has three distinct advantages. First, any height/width ratio may be drawn; therefore, if you are to have a body section which gradually assumes a circular shape at the nose in order to get an even contour from the spinner, each former may be

By PETER G. F. CHINN

plotted accurately to size. Secondly, stringers are automatically plotted in the correct positions, it will be noted that the stringer spacing is closer as the curve of the ellipse becomes more acute. And finally, no special instruments are necessary, just a pencil, and rule, and, if you have them, a T-square and architectural curve.

If the usual formers and stringers are to be used, the construction methods shown in Sketches 4 and 5 will be found very satisfactory; in any case, do not try just cementing the stringers on to the bulkheads, you will never get an accurately aligned body that way. The method shown in Sketch 4 is probably the easiest, but take care to make the two halves exact, so that when placed together every pair of formers are in line. Another good system ensuring accurate line-up is shown in Sketch 5. This was described by Mr. Chasteneuf in the April issue, and is also very suitable for planked construction.

A third method, which might prove more attractive to a builder who has been used to constructing the rectangular type fuselage, is shown in Sketch 6. This consists of a square or diamond-shaped frame built in the usual way with quarter-formers cemented on and stringers added. This type of body does not usually possess the same twist-resisting qualities or such a high strength/weight ratio as the previously mentioned types, but has the advantage of offering a good mounting for the wing and tail unit on the main longerons.

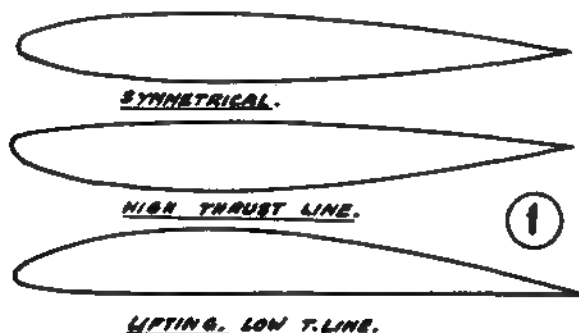
For sheet balsa covered monocoque fuselages the method described in the 1936-37 *Model Aeronautics Year Book* by Mr. Frank Zaic is very good. This is composed of circular formers into which are slotted six stringers at regular intervals around the circumferences. Six sheet balsa patterns plotted to exactly one-sixth of the circumference of each formers are then cemented on so that each joint is placed on a stringer.

Formers should in all cases be of two or three laminations of $\frac{1}{8}$ in. balsa sheet, with the grain crossing for maximum strength. The wall width need not be more than four times the thickness, unless very powerful stress

is likely to be present at any point. In any case the wall width of each former should be in proportion to its size. If the bulkheads are to be notched these are best cut with a small file or hacksaw blade.

Finally, we come to the planked monocoque fuselage. This type does not seem to have found much favour in England, due, probably, to most builders thinking it to be too heavy for a contest model. Actually, a planked fuselage for a Wakefield can be built to weigh as little as two ounces, and if structures of high strength/weight ratio are used in the wing and other parts a finished weight (minus rubber) of about 5 ounces should result.

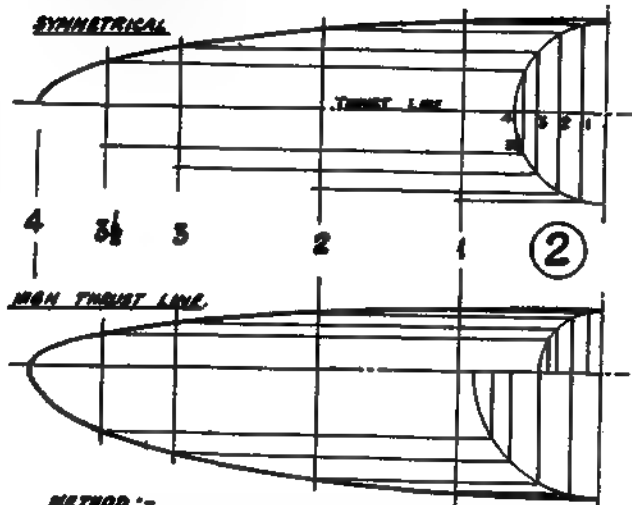
Construction should be of $\frac{1}{16}$ in. thick formers, spaced about every 8 in., and $\frac{1}{8}$ in. thick planks. The bulkheads can be of two laminations of $\frac{3}{8}$ in. medium balsa



sheet, and the planks of fairly soft stock (about 6 to 8 pounds per cubic foot). The planks should be about $\frac{1}{4}$ in. wide, except where acute curves have to be covered, where, of course, they should be smaller. Planking should be done in strict rotation, never in groups, as this will, in all probability, cause distortion.

It is important that the planks are firmly glued to each other, as cracks are likely to open under stress, and thus weaken the structure. Cement in tubes is most convenient for this job, but since it has to be applied fairly thickly in order to ensure a continuous join, it is cheaper to use a home-made preparation. A good cement may be made as follows. Obtain some acetone (an

METHOD OF PLOTTING FUSELAGE OUTLINE.



METHOD:-

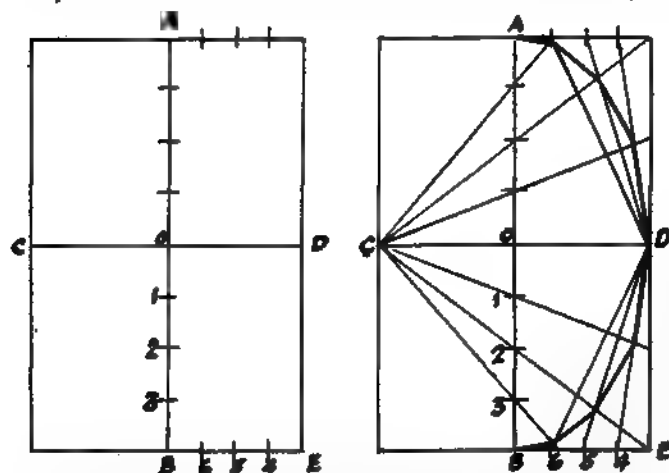
DIVIDE THRUST LINE AND BASE OF ARC INTO AN EQUAL NUMBER OF PARTS.

PROJECT LINES THRO' ARC PERPENDICULAR POINTS TO CORRESPONDING THRUST LINE PERPENDIC.

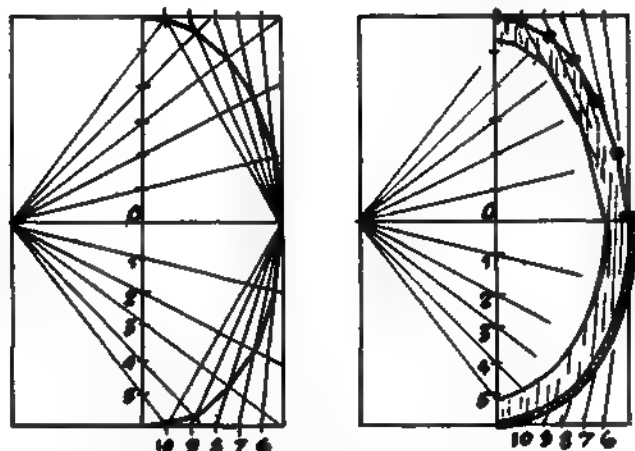
CONNECT POINTS WITH FRENCH CURVE.

8-ounce bottle costs about a shilling at any chemist's), and into this place some small pieces of clear celluloid. The acetone will dissolve the celluloid and gradually thicken in doing so. Add the celluloid until the cement is of the required thickness. Allow the preparation to stand for several hours, until it is of even consistency, when it may be put into some old cement tubes and used immediately. This cement has the advantage of not drying quite so quickly as most "bought" cements, and so is ideal for planking.

When complete, the whole fuselage should be sand-papered down to an even thickness of about $\frac{1}{20}$ in. and given three or four coats of dope with intermittent



DIVIDE OB AND SE INTO ANY NO. OF EQUAL PARTS.
4 FOR 16 SIDES, 5 FOR 20, 6 FOR 24 SIDES



CONNECT UP POINTS AS SHOWN AND JOIN UP INTERSECTIONS TO FORM ELLIPSE.

GENERATION OF ELLIPTICAL FUSELAGE SECTIONS.

(3)

sandings. A final finish of wax will help to reduce skin-friction and add a high lustre.

This type of construction is particularly suitable for models incorporating a folding air-screw and retractable under-carriage, where landings must be made on the fuselage itself.

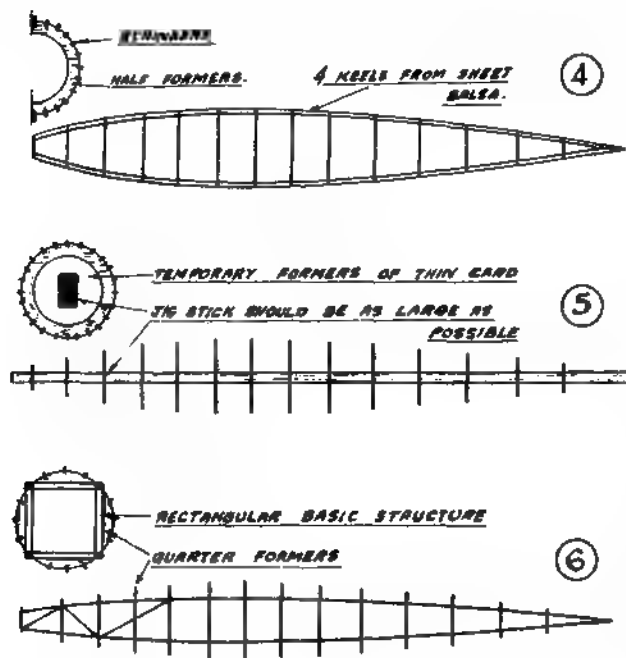
There is practically no limit to the amount of rubber

that can be stored in a planked body, so it should be possible to combine the rocket-like climb favoured by the Americans with a fairly long motor-run characteristic of the British Wakefield type. About eighteen strands of $\frac{1}{4}$ in. \times $\frac{1}{30}$ in. rubber 48 in. long, will produce a long, steep climb on a well-designed Wakefield, and will yield about 1,100 turns, weighing approximately four ounces. This will probably bring the R.T.F. weight up to nine ounces or more, but I think that wing loading matters far less than is generally believed.

A study of full-size sailplanes will reveal that they have quite a high-wing loading, and since duration models more closely approximate this type of aircraft more than any other, it would seem wise to model our planes along these lines. Some high performance soarers have gliding angles of over twenty to one, so flat, in fact, that "spoilers," small surfaces on the upper surface of the wings, have to be used on landing in order to reduce lift.

Of course, the greatest advantage of a model with higher wing-loading and power is that it can fly in weather that would "ground" ordinary models. It is easily seen that in contests held under adverse conditions this type is bound to win. The quick take-off and climb would enable it to fight against being thrown into the ground, the higher wing loading would render it less affected by gusts of wind and rough landings would not easily damage the monocoque fuselage. Higher wing loading would not make any appreciable difference to the thermal-soaring capabilities of such a plane, in fact, the long flat glide from a high altitude should give the model more chance of finding a thermal current.

I am sure that we shall see more of this type of model in future, especially if payload contests become popular.



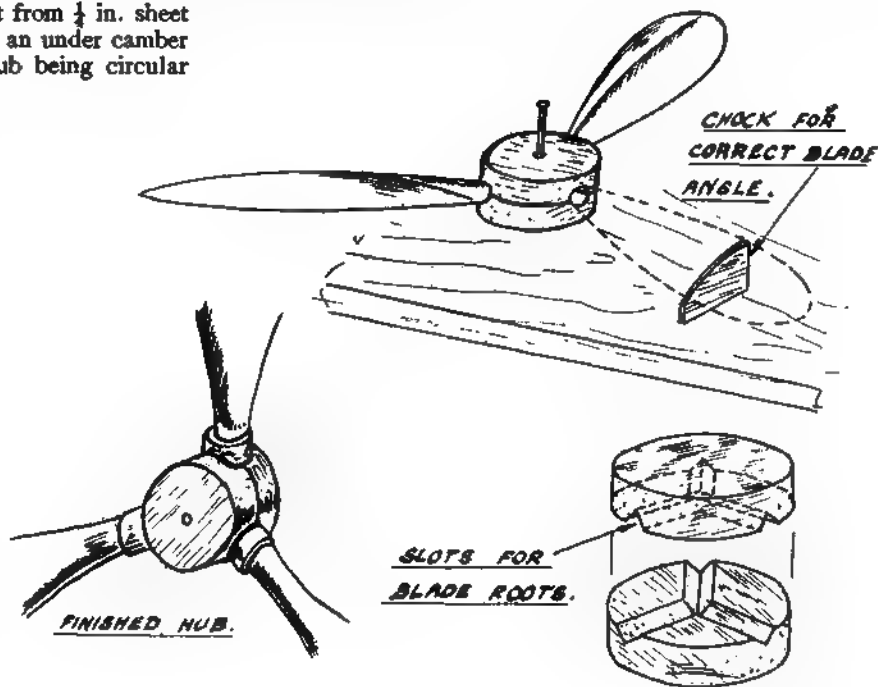
HOW TO BUILD A THREE-BLADE SCALE TYPE AIRSCREW

By C. W. EARREY

THREE blanks for the blades are cut from $\frac{1}{4}$ in. sheet balsa (very hard), and carved with an under camber and a slight twist, the $\frac{1}{4}$ in. nearest hub being circular (diameter $\frac{1}{4}$ in.).

The hub is also cut from $\frac{1}{4}$ in. sheet—two discs, V-grooved and cemented together. The holes are then sanded circular, with a piece of rolled up sandpaper, to receive the blades; these may now be inserted temporarily to obtain desired pitch. To ensure correct setting of each blade, a small piece of sheet balsa should be cut at correct angle and glued to mark out board. Pin hub to board, and using chock for setting, glue in blades, revolving hub on pin to bring each blade in turn over the chock.

When cement is set, the hub may be carved and sanded down, leaving a small amount of the balsa around the blades, when a good "V.P." scale appearance will result.



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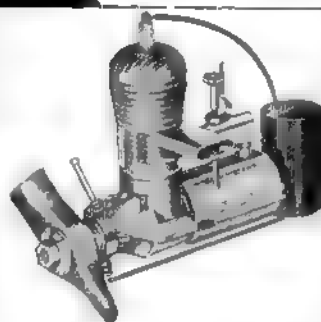
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SPEED MODEL DESIGN

By T. F. PETERSON

DESIGNING, building and flying a speed model airplane is a sport which has intrigued many model aircraft enthusiasts, but one which few have followed after one or two carefully constructed models were cracked up in speed trials. The most common fault in the design of speed models is the lack of stability. Any slight variation from the proper flight path is extremely important in a speed model because of the speed at which the ship travels. Any tendency to stall or dive either with or without power inevitably results in a crash landing.

The actual design of a speed model is rather a problem of cut and try until the desired result is achieved. However, a few basic principles may be set down from which the development of the design may proceed. The first step is the consideration of the requirement for good performance in a speed ship.

The aim of any speed model design is to cover a given course in the shortest possible length of time. In this case the old axiom, "a straight line is the shortest distance between two points," is quite appropriate. The ship must fly in an absolutely straight line, using time and power to cover the course rather than in aimless wandering. It should fly close to the ground, so as to utilize its power in forward propulsion rather than for climb. A flat, straight flight path is then necessary for the success of the model.

The flattest and straightest flight path would be useless if the ship did not possess great speed in flight. Speed may be obtained in two ways, adding power and reducing the flight resistance of the model. It is obvious to any student of aerodynamics that any ship of given weight and power will fly faster with a wing of small area than with a wing of larger area, because of the greater resistance of the larger wing. With the wing of smaller area the 'plane must fly faster to remain aloft, due to the greater unit wing loading. Reducing the ship's weight to a minimum will allow further reduction in wing area and consequent reduction in flight resistance. Addition of power in a rubber-powered model entails addition of weight, increased wing area, and therefore increased resistance. The designer is forced to choose the happy medium.

From the foregoing we find that a speed model must have high power, low resistance, stability, and a minimum of climb. A combination of these features should result in performance worthy of the name speed model. Let us now consider the proportions of a model which will give these qualities.

Reduction of wing area infers that the span of a speed model shall be as small as possible to keep the aspect ratio within reasonable limits. In fact, it is desirable to keep the span small from the standpoint of stability. This minimises the effect of air currents on the wing tips which tend to divert the ship from its flight path. The short span reduces to a minimum the moment of the upsetting forces.

The necessary directional stability may be obtained with a tail moment arm which is long relative to the span. This gives the tail leverage to more completely overcome the upsetting forces. The long tail arm also contributes to the longitudinal stability of the ship, although this is not so necessary in model design. To preserve the effectiveness of the long tail arm the nose arm must be kept as short as possible. Thus the tail should

be built light and the nose heavier for balancing the ship. The weight of the nose may be kept at a minimum by placing the landing gear far forward and making it slightly heavier than necessary. Hardwood wheels serve this purpose admirably.

Lateral stability is usually obtained with dihedral. However, in a ship of small span the upsetting forces are minimized by their short moment arm, so that only a small amount of dihedral is necessary. The span of the ship could be made even smaller, further minimising the upsetting moments, except that a small span does not have sufficient resistance to the torque of a high speed propeller.

The long tail arm allows use of very small tail surfaces. Any tail surface adds resistance, so the minimum should be used. The requirement is merely one of stability. Care must be taken that there may be neither too much or too little fin for a speed model. When too much fin is used it holds the ship on its course, but this is a left-hand circle, due to the banking of the ship by the propeller torque reaction. If the fin is too small the tail will be swung to the left by the gyroscopic action of the propeller and a circle to the right will result. The medium value allows the tail to slip enough to counteract the torque and holds the ship on a straight course.

The power plant of a speed model is the source of its speed. The rubber motor should be of large diameter, retaining the ability to absorb sufficient turns to carry the ship through the course. Thus the length of the course is a determining factor in selecting the amount of power for the model. Thus the shorter the course the greater may be the cross-section of the motor. The other consideration is the rotational speed of the propeller. High speed requires a high rotational velocity.

The propeller is extremely important, since it transforms motor torque into thrust. The larger the diameter the more efficiently it can do this. However, with a short span a large diameter propeller would create excessive torque, and result in lateral instability. The pitch of the propeller is similarly limited by torque considerations. Making the propeller from basswood or pine gives it sufficient strength to absorb the power and adds weight to the nose to aid in balancing.

Since the wing contributes a great deal to the flight resistance, the wing section is of great importance. It should be one of low resistance. Thin sections with negative camber on the lower surface give the best results. Tip resistance may be reduced with a well-rounded outline and knife edge taper. An elliptical wing is, of course, most efficient, and therefore advisable.

To obtain the desired flat trajectory the ship should be assembled with a high line of thrust and a low line of resistance, indicating a low wing setting. This combination gives a nosing over couple, which is counteracted by a slight negative setting of the stabiliser. The nosing up effect of the negative stabiliser and the nosing over couple are both proportionate to the speed, and therefore balance each other at all speeds. By making the nosing up effect slightly the larger, a gentle climb and gradual descent will be achieved.

Having discussed the requirements of the various parts of a speed model let us set down, average values and sizes for the ships parts.

Wing: Small span, small area, aspect ratio from 4 to 6, thin section, knife edge taper, rounded or elliptical

outline, set low on model, one-half to one degree angle of incidence.

Tail moment arm: Relatively long, fifty to one hundred and twenty-five per cent of the span.

Nose moment arm: Relatively short, one-third to one-half the tail arm.

Propeller: Hardwood, one-third to one-half the span in diameter, pitch one-and-a-half to two times the diameter. Ten to twenty per cent of the wing area in blade area.

Motor: Maximum cross section allowing sufficient turns to cover the course, 20 to 30 strands of $\frac{3}{16}$ in. by $\frac{1}{16}$ in.

rubber commonly used; lubricated well, high line of thrust.

Fin: Six to ten per cent of the wing area.

Stabiliser: Thirty-five per cent of the wing area set at zero degrees to the line of thrust.

Landing gear: Short as possible, well faired, line of thrust to ground, sixty per cent of propeller diameter on short-nosed models, sixty-seven per cent in long-nosed models.

General: Build the ship as light in weight as practical, streamline well, and finish in a high gloss to reduce skin resistance.

BUILDING THE SUPER-SPEEDSTER

By T. F. PETERSON

SUPER-SPEEDSTER is the seventh of a series of speed models designed and built by the author in the past three years. It has a comparatively simple construction, and gives admirable results in speed timed flight. On three occasions it has had an elapsed time of 1.8 seconds for a 220-foot course, or a calculated speed of 98.4 miles per hour. The author, however, does not guarantee the accuracy of the timing because of the shortness of the trial course. On every occasion the ship has equalled or bettered 75 miles per hour.

Fuselage.

The fuselage is made in the keel and former method. The keel is cut from $\frac{3}{16}$ in. sheet balsa in the pattern shown on the side view. The formers are cut from $\frac{1}{8}$ in. and $\frac{1}{16}$ in. sheet balsa, as indicated, notched and glued to the keel. The framework is covered with $\frac{1}{16}$ in. sheet balsa on the nose to former number 5, except the flat top surface, which is covered with $\frac{1}{32}$ in. sheet to former number 8. The remainder of the fuselage is covered with 1/64 in. sheet balsa. The nose and tail pieces are built separately. The nose block is carved from hard balsa and a square block glued on the rear face to fit the opening in former number 0. The tail piece is built on a keel similar to the fuselage. The forward end on the tailpiece is a former the same size and shape as number 11 with a rectangular block to fit the opening in number 11. It is reinforced for the rear motor hook with a piece of hard balsa, as shown in the side view.

Wing.

The wing is built up from $\frac{1}{16}$ in. sheet balsa to a maximum thickness of $\frac{3}{16}$ in. The dihedral begins just outboard of the centre section. A typical cross section of the wing is shown on the drawing. The wing is sanded to shape with "knife edge" trailing edges and tips. The finished wing is covered with fine tissue and doped. Rub the finished wing to a high gloss. A small piece of fine sandpaper is glued to the undersurface of the centre section to prevent slipping of the wing. The wing is fastened to the fuselage with rubber bands.

Tail Surfaces.

The tail surfaces are cut from balsa built up of two $\frac{1}{16}$ in. sheets glued together. Sand to knife edges, cover with tissue, dope and rub to a high gloss finish.

Propeller.

The propeller is carved from a pine block 5 in. x $\frac{1}{8}$ in. x $\frac{3}{16}$ in., using the diagonals method. This gives a propeller of 10½ in. pitch and approximately 2½ in. blade area, 5 in. in diameter.

Landing Gear.

The landing gear is made of .084 in. music wire. The two parts are joined at the axle by wrapping with fine wire and soldering. The wheels are $\frac{3}{8}$ in. hardwood. The tail skid is bent from .084 in. wire and fastened into the keel of the tailpiece.

Power.

The ship is powered with 50 strands of $\frac{1}{8}$ in. flat rubber. The propeller shaft and rear hook are bent from .084 music wire. The propeller shaft has a loop for the winder on the fore side of the propeller. The rubber should be well lubricated and machine wound to obtain the best results.

Balancing.

The ship should balance about a line through the wing tips. If it is nose-heavy the hardwood wheels may be replaced with celluloid wheels or the size of the wheels may be varied. If it is tail-heavy larger wheels may be used to balance. Fractional movements of the wing may also be used for balancing.

Testing.

To flight test the ship put about 50 to 75 turns in the motor by hand and hand-launch upward at about a 60 degree angle. Adjust until it will fly off in a straight line.

Flying and Timing.

After the ship is properly adjusted to the desired performance, wind the motor with a machine winder, and start it R.O.G. with a slight push at the start of the speed course. Any length course may be used, but it is desirable to use standard courses of 44, 88, or 220 feet for ease in calculating the speed in miles per hour. A word of caution in regard to speed claims for any model. On a 44-foot course a time of .8 sec. is 100 m.p.h., but .4 sec. is only 75 m.p.h. Similar variations with a small fraction of a second variation in the elapsed time exist at other speed distances. A slight error in timing of one-tenth of a second might well occur to give an inaccurate valuation of the ship's speed.

The author has found the most accurate method of timing to be the use of two stop watches. The watches are started, and the difference between them noted. A timer is stationed at either end of the course. The first watch is stopped as the ship crosses the starting line. The second is stopped as it crosses the finish line. The difference of reading of the two watches is again noted and the elapsed time calculated.



PROP. BLOCK. PINE

5" x 2" x 3"

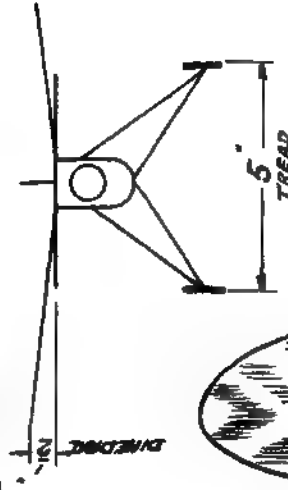
POWER:- 50 STANDS 1/2 FLAT.

FULL SIZE WING, TAIL PLANE AND RUDDER

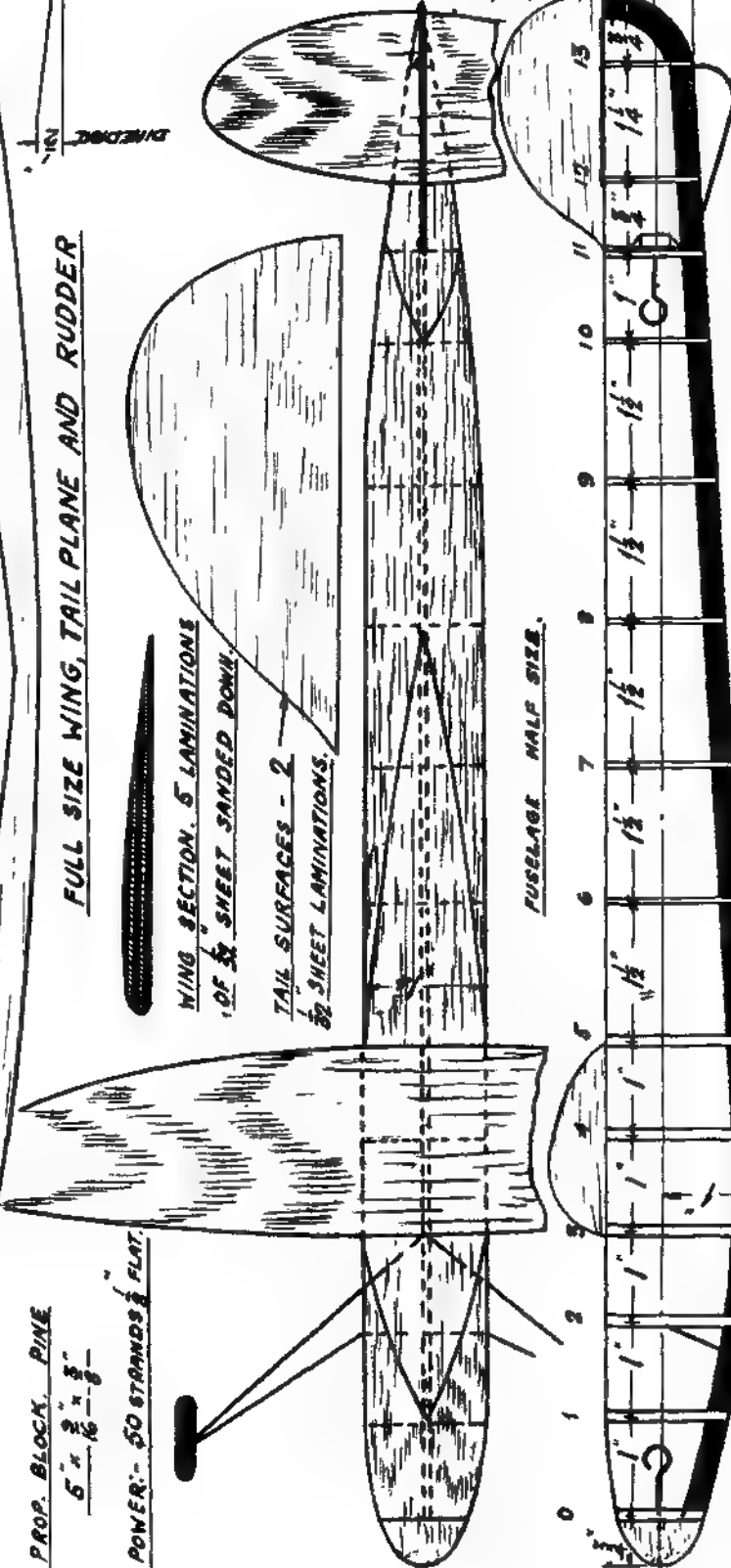


WING SECTION. 5 LAMINATIONS
OF 3/2 SHEET SANDED DOWN.

TAIL SURFACES - 2
3/2 SHEET LAMINATIONS.



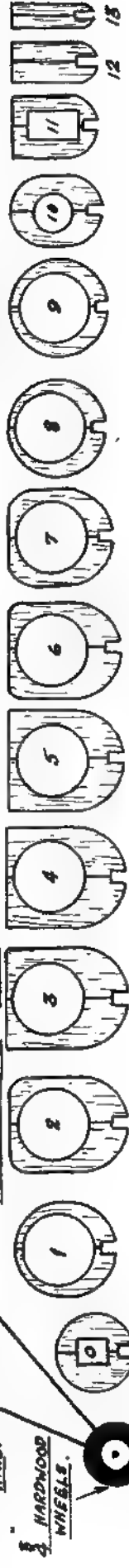
FUSELAGE COVERED
WITH 3/2 SHEET TO
FORMER 5 AND REST
OF FUSELAGE COVERED
WITH 3/4 SHEET.



FUSELAGE HALF SIZE.

KEEL CUT FROM 3/2 SHEET. HALF SIZE FORMERS. 0-5-3/2 SHEET. 6-10-1/2 SHEET. 11-3/2 SHEET.

1/2" HARDWOOD WHEELS.



1/2 1/3

AT THE SIGN OF THE WINDSOCK



THE membership of the Model Aircraft Trade Association (the secretary of which is Mr. C. J. Bradstreet, 92 Durham Road, East Finchley, London, N.E.) continues to steadily increase. Recent new members include the following:

E. J. Bannister, 46 Battersea Bridge Road, S.W.11
 W. T. Cooper, 2 and 16 Station Road, Walthamstow, S.17.
 Arthur D. Debenham, Hinckley Road, Burbage, Lincs.
 W. Rowley and Sons, 50 Coldharbour Lane, Hayes, Middlesex.
 Frank Royle, 117 Buccleuch Street, Edinburgh 8.
 Sam Weller and Co. Ltd., 14 The Broadway, Elm Park, Essex.
 A. A. Baker, 528 High Road, Chiswick, W.4.

Messrs. Cloud Model Aircraft, 304-6 High Street, Dorking, Surrey, ask us to point out a mistake in their last month's advertisement, wherein the price of the Soaring Glider, advertised on page 485, was given as 5s., whereas the correct figure is 3s. This firm is proud of the fact that second place in the *Flight* Cup Competition, held at Cranwell recently, was obtained by Master Tony Hayes, of the Surrey Model Aeroplane Club, with his "Airmaster," built from one of their kits. Tony is only fifteen years of age, is still at school, and built his petrol 'plane entirely without assistance. The time for his model's flight was 57 sec., against the figure of 56 which had to be aimed at.

Messrs. Studiette Handcrafts, Stanley Works, Lower Essex Street and Kent Street, Birmingham 5, report a large increase in the sales of their "Longflight" model aircraft rubber. Freedom from breakage, more turns and "plus-power" features of long flight are claimed to be responsible for the popularity of this rubber.

Eastern Model Airplane Co., 222 Nathan Road, Kowloon, Hong Kong, China, whose advertisement last month was on page 471, and is this month on page 584, ask us, when introducing them to our readers, to point out that Hong Kong is a British colony, and therefore this firm claims that their products are products of the British Empire. This firm have an attractive selection of thirty models, consisting of eighteen different types, and invite model aircraft stores to send for this selection. Kits range in price from 8d. to 5s. 6d.—a particularly attractive one being that of the Fairey "Battle," span 20 in., which is complete even to a carved airscrew, and offered at a price of 2s. 6d. post free anywhere. Eastern Model Airplane Co. have just produced a new illustrated catalogue, which they will send to any address on receipt of 8d.

Messrs. Chingford Model Aerodrome, of 155 Station Road, Chingford, London, S.W., who are trade suppliers only, and whose advertisement appeared on page 458 of our July issue, have asked us to point out a printer's error in their advertisement. Best flight to date of their 5s. 6d. semi-scale high wing cabin monoplane "Astra" was stated at 2½ min., whereas the correct figure is 2½ "hours." Unfortunately, another mistake occurred in reference to this firm, and that was a note we made in our Windsock feature on page 508 of the same issue. We stated that their range of British-made hand-carved propellers was available in sizes from 14 in.—18 in. diameter, whereas the first figure should have been 4 in. We regret these two errors, and trust that model shops who trade with this firm will amend their notes accordingly.

Messrs. Caton's Ltd., 1 Mermaid Court, Borough, London, S.E.1, have also asked us to correct a small mistake which occurred in this feature, where we referred on page 502 to their rubber supplied with the semi-scale kit offered by Vimana Aeromodel Supplies. We stated that this rubber was "Caton's latest type round rubber," whereas the last word but one should read "brown." Mention of this firm of rubber supplies reminds us that they have just introduced a range of air wheels for petrol models. A pair of 8½ in. size wheels costs 10s., and a pair of 2½ in. size costs 6s. 6d. We have examined the smaller size, and find it to be a very satisfactory product. The wheels are provided with bakelite centres, which combine lightness with a high degree of strength, and an interesting feature is the simple and leak-proof valve built into the tyre, through which a bicycle pump adaptor (provided with each pair of wheels) can be inserted. The bakelite hubs (which are of patented design) may be disconnected without detriment to the tyre.

The Model Shop, 2 College Road, Barras Bridge, Newcastle-upon-Tyne 2, whose advertisement appears on page 574 of this issue, ask us to announce that their air wheels for petrol 'planes are now available in five sizes.

The 4½ in. diameter at 9s. 6d. per pair, 4 in. diameter at 8s., 3½ in. diameter at 6s. 6d., 2½ in. diameter at 4s. 6d., and 2½ in. diameter for tail-wheels at 2s. 6d. each. These air wheels now incorporate a new type of valve, and every pair is sold with a written guarantee, running for twelve months from day of purchase. We understand that the Model Shop are the only firm of air wheel manufacturers offering such a guarantee. This firm asks us to announce that they will be advertising, in our next issue, a special offer of "Syncro Special" engines at £2 17s. 6d. each. There will also be the "Syncro Ace," at £8 7s. 6d. each, and the 1-5 cc. "Bee" at £3 5s. 6d. each. The Model Shop is, of course, known for its extensive range of "Keelbild" series of flying scale models and construction sets—fully illustrated details of these are given in their catalogue.

The Model Aircraft Stores (Bournemouth) Ltd., 127b Hankinson Road, Bournemouth, recently sent us one of their 6 cc. "Wasp" engines for examination, and we are pleased to report that, so far as we can see, it is a very good job. Crankcase induction via a rotary valve in the crankshaft is employed, and the throttle is controlled by a needle provided with an adjustable bush, which prevents vibration. The engine, whilst of light weight, is of extremely robust construction, and an interesting feature is the large diameter of the fins on the cylinder. A streamlined exhaust pipe is permanently fixed on the cylinder, which is provided with a detachable cylinder head. Timing is, of course, adjustable. Brackets are incorporated in the crankcase castings, enabling the engine to be mounted in either the inverted or upright position. We have given this engine a short run, and find that it develops good power, and we have also had the opportunity of seeing one of these engines "in action" on a 'plane at the recent Hamley Trophy Competition. Full particulars of this engine and others in the range may be obtained from the manufacturers,



their advertisements or on their premises, will be honoured to give the visitors all the help they can.

F. R. BARNARD, *Chairman*.

The Model Aircraft Trade Association, reprezentuje firme u Velikoj Britaniji koje jamce da ce liferovati najbolju spremu i materijal za vazduhoplovce, kao i to da ce svojim musterijama dati prvoklasnu poslugu, prikljucuju se dobrodoslici nasim prekomorskim posetiocima i zeli da im horavak u nasoj zemlji bude u najvecoj meri prijatan i veseo. Sva sredstva kojima raspolaze M.A.T.A. na njihovom su raspolozenju, kao i sve firme koje izpisuju znak M.A.T.A. u svojim Oglasima ili na svojim lokalima imati ce cast da pruze posetiocima svaku pomoc koje budu u njihovoj moci.

F. R. BARNARD, *Predsjednik*.

who ask us to point out that the engine is of entirely British manufacture, that it is made by precision engineers, and that all spare parts are obtainable by return of post.

Our centre pages this month contain full instructions for building the magnificent 41 in. span high wing cabin model, the "A.W.—6," full-size scale plans of which we present with this issue. This is a most attractive model, from which a good performance can be obtained. Photographs of the actual model built by our contributor are published with the instructions, whilst a list of materials required is printed on the plan.

On pages 548 and 550 appear display advertisements on behalf of Messrs. Cloud Model Aircraft and Super Scale Models. Cloud Model Aircraft, of 304/6 High Street, Dorking, Surrey, have built up a reputation for offering excellent kits of a wide range of models, and they offer a complete kit of materials for 12s. 6d. Cloud also offer kits of the "Sparrow Hawk," plans of which were given away with our March issue, and their advertisement appears on the back outside cover page of this issue.

Messrs. Super Scale Models, of Uppingham, Rutland, have also built up a reputation for "Super Scale" kits, with their "Kestrel" and "Lysander" designs. This firm specialise only in kits of the medium and high price type, their policy being to offer high-grade kits for the connoisseur. Their kit of parts for the "A.W.—6" is priced at 15s. 6d. post free. They offer a completely finished hand-carved airscrew and a complete set of ribs and bulkheads already stamped out on M.A.T.A. grade balsa, together with all other parts required.

Readers desirous of building this model, and anxious to obtain all the materials in "one go," can obtain same from one or other of these advertisers.

Die "Model Aircraft Trade Association" (Modell-Flugzeug Handelsvereinigung), die Firmen in Grossbritannien vertritt, welche die besten Ausrüstungen und Materialien liefern und überhaupt einen erstklassigen Kundendienst ausüben, schliesst sich der Begrüssung unserer ausländischen Besucher an und gibt der Hoffnung Ausdruck, dass sie ihren hiesigen Aufenthalt aufs vollste geniessen werden. Die Mittel der M.A.T.A. stehen ihnen zu Diensten und alle Firmen, die in ihren Anzeigen oder in ihren Geschäftslökalen das M.A.T.A. Abzeichen führen, werden sich geehrt fühlen, den Besuchern alle ihnen nur mögliche Hilfe zu leisten.

F. R. BARNARD, *Vorsitzer*.

La "Model Aircraft Trade Association" (Association pour le commerce des avions mécanique modèles) qui représente, en Grande Bretagne des firmes qui se sont engagées à fournir à leurs clients les meilleurs outils et le meilleur matériel ainsi que des services de premier ordre, se joint à tous dans leurs souhaits de bienvenue à nos visiteurs d'outre mer et espère qu'ils garderont le meilleur souvenir de leur séjour dans notre pays. Les ressources dont dispose la M.A.T.A. sont à leur disposition et les firmes qui portent la marque de la M.A.T.A. dans leurs réclames ou dans leurs établissements seront honorées de toute aide qu'ils pourraient apporter aux visiteurs.

F. R. BARNARD, *Président*.

2½"
Dia.
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pair



3½"
Dia.
10/-
per
pair

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— A Pair of 2½" dia. weigh 1½ oz. —

These wheels have a patent valve for which an inflator is provided. The unique hub can be dismantled for the purpose of repairs to tyre without detriment to the wheel.

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Mermaid Court, Borough, London, S.E.1
Members of the M.A.T.A.

WANTED

THE Directors of Model Aeronautical Press Ltd., proprietors of THE AERO-MODELLER, invite applications for the position of sub-editor and draughtsman at their Leicester offices.

Applicants *must* be practical aero-modellists, and competent draughtsmen. Whilst previous editorial experience is unnecessary, knowledge of sub-editing work and/or experience of article writing will be an advantage.

The commencing salary will be about £8 per week, according to the ability of the selected applicant, and it will be reviewed at the end of six months and one year. The position offers considerable scope for development by a keen aero-modellist with a flair for editorial work.

Applications should be addressed to the Managing Director, Model Aeronautical Press Ltd., Allen House, Newarke Street, Leicester, and should give age and full particulars of education, training, business experience, and practical and technical experience of model aeronautics.

All applications will be treated in strict confidence, and will be acknowledged. Applicants will also be notified when the position has been filled.

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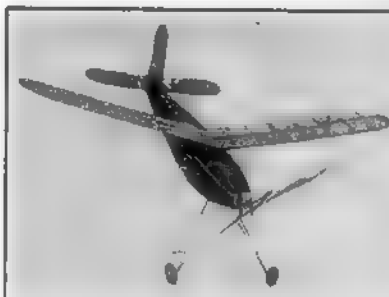
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NEWS FROM ALL THE CLUBS

By CLUBMAN

HERE we are again, chaps, and, being just about ready to start out on holiday, I'm not going to keep you long with my "preliminaries," but there are, as usual, one or two things that need stressing, and I'm starting right off with the Plugge Cup position. Results are now to hand for the M.E. No. 1 Cup and the Short Bros. Cup, and it is now possible to give the complete list of Plugge Cup placings to date, as follows:

Club	Pilcher	Gamage	Weston	Mod.	Eng.	Shorts	Total
Halifax ...	110	590	219	198	153		1270
Northern Heights ...	69	596	230	230	147		1262
Lancs ...	71	688	173	253	132		1217
Barnes ...	84	595	135	213	98		1125
Blackheath ...	25	519	226	115	150		1085
Luton ...	52	513	213	173			951
Dartford ...	40	450	161	174	110		935
Harrow ...	—	491	172	142	103		906
Bristol ...	—	545	146	73	129		893
North Kent ...	—	512	206	—	108		824
Hornchurch ...	18	528	76	96	43		763
T.M.A.C. ...	—	506	31	13	139		689
City ...	39	290	69	196	27		631
P.M.A.L. ...	52	482	53	75	—		612
Birmingham ...	17	389	53	100	52		611
Hayes ...	39	445	—	27	57		559
West Sussex ...	64	290	—	178	7		539
Woodford ...	—	342	33	132	21		528
Southport ...	—	443	—	75	—		518
Leeds ...	—	410	—	72	—		482
Kingston ...	—	477	—	—	—		477
Ashton ...	28	371	—	—	—		399
Lancaster ...	—	381	—	—	—		381
Cheam ...	—	373	—	—	—		373
Bradford ...	—	285	—	78	—		363
Shorts ...	—	265	22	37	34		358
Cardiff ...	—	317	—	—	—		317
Midland ...	—	132	—	179	—		311
High Wycombe ...	—	273	—	—	—		273
Cranwell ...	—	265	—	—	—		265
Bournemouth ...	—	262	—	—	—		262
Hawker ...	6	168	18	65	—		257
Chelmsford ...	18	157	—	71	—		246
Weston-super-Mare ...	—	217	—	—	—		217
Edgware ...	—	196	—	—	—		196
General Air ...	33	—	76	76	—		185
Avenue ...	—	150	—	—	—		150
Warwickshire ...	—	134	—	—	—		134
Batley ...	—	126	—	—	—		126
Victoria ...	—	115	—	—	—		115
Windsor ...	—	—	—	84	—		84
Yeovil ...	—	—	—	67	—		67
Bath ...	—	32	—	31	—		63
Fife ...	—	55	—	—	—		55

Since the last list was published in the June issue, only one alteration has taken place in the top end of the list, Blackheath having switched places with Luton, but Northern Heights have reduced the Halifax lead from 84 to 8 points, while the Lancashire boys have reduced the gap between them and N.H. from 58 to 45. Fairly substantial gaps separate these three clubs from those following on, and I very much doubt if there will be any change in the top end, excepting the order in which the three clubs finish. However—there's many a slip between now and the end, and the wolves will be snapping at the heels of the present top dogs. A fine fight has developed between a southern and a northern club for top position, and I can foresee great efforts being made in the remaining two rounds. Both clubs have members in the Wakefield team, and I hope that the trip will not

put them off their stroke. (Incidentally, what are the odds on the biplane record going to blazes on September 3rd)?

Halifax certainly deserve their lead, having collected two firsts, two thirds, and a fourth in scoring totals, whilst Northern Heights have one first, two seconds, a third and a fourth. Have you noticed that sixteen clubs have only entered one round, whilst only nine have made 100 per cent efforts. Rather surprising, this, and though some may plead "weather," I would point out that this year conditions have been fairly much the same for all on each event. Generally, support seems to be fairly equal from all over the country, and a glance at the club entries will give a good idea of the popularity of this contest.

I cannot let this month pass without a word on the generosity of our patron, Lord Wakefield. Following on his donation to the Wakefield Fund comes another magnificent gift toward the running of the King Peter Cup event, and I am sure you will all join with me in thanking him most heartily for his practical interest in our hobby and obligations. Unlike most countries, the model aircraft movement gets no official support in England, and it is a great asset to have such public-spirited benefactors at our aid.

A tricky point raised at the last Council meeting was the canvassing of club members by a rival body, and I shall be interested to see the outcome of the Council's enquiry into the matter. Appearances go against the party who did not put in an appearance when requested to attend the meeting, and, without wishing to make too definite a statement until the matter has been put to the Council, I do feel that this sort of thing is not to be countenanced.

I have a letter this month that I hope will bring many replies from my readers. S. J. Elliott, of South Park, Papworth Everard, Cambridge, had ambitions to join the R.A.F., but health has prevented the realisation of this, and he is now in a sanatorium, and can only read about 'planes and build models. He asks if any readers have any books or magazines about models or full-size 'planes that they have finished with, and he would be very grateful to receive them. Now then, you fellows, what about it? I have an idea that Elliott is going to be snowed under!

As you will see from the Council report, Mr. A. F. Houlberg and Mr. Cosh will be going with the team to New York, and I am sure that in these two gentlemen we have very able representatives of our governing body. The team will be leaving for America just after this issue is on sale, and I am sure we all wish them *bon voyage* and the best of luck in their attempts to bring the cup back with them.

I see that the Council stress the fact that clubs who have not yet organised themselves into an area group are suffering in consequence, and therefore should see to the matter at once. It is strange that so many of us do not wake up to things until we start feeling a kick somewhere, and I hope that the Council's warning will be heeded immediately. I understand that representation may be made fixing a date by which time all clubs must have formed into the specified groups.



At top left is a Danish glider, with, underneath, a group of Danish aero-modellists. Next we have a group of lady enthusiasts of the Dublin Club; whilst the photo underneath this group shows a successful "pick-a-back" model belonging to a member of the same club. At bottom is shown Mr. P. Povey, of Wokingham, with his "Korda" model. In next column are shown the "two mad inventors from Cardiff" above a fine-looking model built by Mr. Howarth, of Roskilde. At top right we have the Metcalfe brothers with their scale models, and, underneath, a 5 ft. span glider built by Mr. Hartley, of the Aldersbrook Club.

Well, I suppose we shall all be eagerly awaiting this next month, with its two International events and many inter-club rallies, etc. Next issue should be extremely interesting, and it is my sincere hope that we shall be able to read the headlines—"ENGLAND WINS THE WAKEFIELD AND KING PETER CUPS." Stranger things have happened you know.

And so, let's to this month's reports and see what has been happening in our own little island and abroad. News comes this month from our friend, V. O. Anderson, of Denmark, who, you will remember, asked for the exchange of blue-prints, etc. I hope some of you have been able to oblige. Mr. Anderson sends in three photos, one showing a large sailplane of German design, a Danish type called the W.17—built in great numbers by the Danish aero-modellists, and holder of many records—and a group of fliers with their gliders just before an inter-club contest.

There are 82 clubs in Denmark, nine being in Copenhagen, with a total membership of around 400. Interest is largely concentrated on sailplanes, and at the moment there are only two petrol models in the country. However, these chaps are very keen on interchange of ideas, etc., with English enthusiasts, and will be very pleased to hear from any of our readers.

Flying grounds are presenting difficult problems in some directions, and the WALTON AND D.M.F.C. ask for information of a suitable ground in their area. The first competition of this new club was won by Mr. Hatherall with a time of 165 sec. in the light-weight class, and Mr. Clayton with 90 sec. in the heavy-weight section.

The DUBLIN M.F.C. are making good use of their ladies' section, the "better halves" being pressed into service holding models whilst being wound, etc. A photo shows some of these willing helpers, while another shows a very successful Mayo type model in flight. The lower portion is a Korda of 48 in. span, while the top section is a 20 in. Cadet Junior. Mr. Hetherington, of this

club, recently made a fine flight of 5 min. 45 sec. O.O.S.

Still in Ould Oireland, we have the Ulster M.A.C. report of a good show on Empire Air Day, when 90 models were shown, among them being a compressed air job built by Wing-Commander Seward in 1918—and still flying! Mr. Hamilton amazed the spectators by flying his petrol model out of sight. The Walter Rusk Cup and the Gowin Cup events were declared "no contest" owing to all the entries being cracked up by wind before the start. Where have I heard that before!

The PETERBOROUGH M.A.C. are holding an open rally on August 27th, at which six events will take place. D. Stock, flying a scale 1911 Caudron, won the recent scale flying contest, Messrs. Venn and Riley following closely. Mr. Venn made the best flight, of 25 sec.

Talking of scale flying competitions, brings me to the LANCASHIRE M.A.S. report, which states that Mr. F. Bailey won the Hart Trophy for this type of model, with a best time of 85 sec., also making a second flight of 56 sec. Mr. A. Tindall was the runner-up, making three flights of 41, 45 and 51 sec. This is some flying, if you ask me, and is about the best flying scale times I have heard of for some time.

J. Taylor won both the Junior and Freshman's Cups, and is leading by a big margin in the recently presented Junior Championship Trophy.

Two members of this club compete in the King Peter Cup finals, and many successes have been gained in the inter-club rallies held recently—many models being lost in the course of the thermal chasing. (Incidentally, Rushy wants to know of an effective method of destroying bikes that get in the way at some rallies, his model getting badly bent in an argument with one of these contraptions!) Preparations are well in hand for the Northern Rally, which will have taken place by the time this is in print, a very large entry being expected.

I am asked to point out that after the Rally, which take place on July 16th, model flying will cease to take place on Woodford Aerodrome, owing to the greatly

increased activities on the 'drome, testing new machines, and Civil Air Guard flying. Intending visitors and members please note.

Three new records have been set up in the BARNES AND D.M.A.S., as follows:

Seaplane.—124 sec., by Mr. Preston.
Scale.—38 sec., by Mr. Wakefield.
R.O.G.—276 sec., by Mr. Dove.

This latter flight was made at the Wakefield Trials, the machine being lost. This was hard luck, as another two-minute flight would have won the event for Mr. Dove. The scale figure was made at the N.H. Gala Day in very poor weather. Mr. Preston won the Prah Cup.

Mr. Perry, of the GRIMSBY AND D.M.A.C., broke the club record for solid balsa gliders, tow-launched, with a flight of 58 sec. An exhibition staged in a cinema has had good results.

The PORTMARNOCK AND MALAHIDE M.F.C., formed in April, attended the Rally held in Phoenix Park, Dublin, and succeeded in getting a first and a second place in the competitions.

All the lads and lasses of the BLACKHEATH M.F.C. had an enjoyable evening, when 15 "Jitter Gas Bugs," who were turned loose in the clubroom, created a racket with the models that they had brought along.

Notable models included a super low-wing job with many novel features, designed and built by Mr. Galbreath, Mr. Cosh's fine "Super Buccaneer," a "Buccaneer 48" by Mr. Hawkins, and Jack Townsend's noisy Brown-powered "Flying Quaker."

Mr. Crow has resigned his job as Press Secretary, due to C.A.G. activities, but he has no intention of leaving the club. The new Press Secretary is Mr. M. W. White, who was selected by popular vote.

The Club Glider Competition, held on Epsom Downs amid fine weather, resulted as follows:

	Av.
1. G. R. Cook	55.8 sec.
2. H. G. Taylor	86.7 "
3. H. Simmonds	84.57 "

Mr. E. Chasteneuf displayed and flew his Frog entry, gaining 129.65 points. Mr. A. F. Cook clocked 164.6 sec. average in the Frog junior event.

Both the Short and Club Seaplane Competitions went off with the usual B.M.F.C. swing when lads plus models arrived on the Heath. Mac's super diamond parasol light-weight was lost to sight vertically overhead after an 8½ min. flight, and G. R. Cook followed suit after a spectacular take-off. The placing in the Club Competition was:

	Av.
1. R. W. M. Mackenzie	246.85 sec.
2. G. Cook	147.18 "
3. E. Chasteneuf	74.8 "

The LIVERPOOL M.F.C. have held two exhibitions in local stores, with good results from all points of view, except that people *will* try the fragility of the covering for themselves, with somewhat disastrous results!

A new club is the TUNBRIDGE WELLS M.A.C., who are flying on the St. Marks Recreation Ground. Particulars can be obtained from the Secretary, Mr. A. Williams, 8 Frant Road, Tunbridge Wells. A "P.S." informs me that the pubs. are open on Sundays! Am I to take this as a standing invitation?

All the members of the SWINTON AND D.M.A.C.

are pleased with the way in which the club continues to make its presence felt at the various rallies attended. At the Warrington rally Mr. L. Warburton finished second in the Under 150 sq. in. Competition.

Result of the Medal Competition was as follows:

1. D. Wilde ...	966.6	—	—	Av. 822.2
2. L. Mellor ...	90.5	286.5	90.5	152.5
3. E. Snape ...	76.5	165.5	55.5	98.5

As will be seen, D. Wilde won with only one flight, lost O.O.S. with over 16 min., although it was timed for over 21 min. This model has not yet been found.

Hush-Hush News.—R. Hallsworth has nearly finished his Wakefield job for this season!

Mr. Hartley (Jammy to you), of the ALDERSBROOK M.A.S., lost his 'plane recently, after an O.O.S. flight of over 7 min. This club sends along an amusing poem that bears very largely on a very controversial point, on Wakefield Trials Day. Weight!


"The day is hot, the walk is long,
The boxes heavy, the arm not strong.
Crates unpacked reveals the fact
Aldersbrook does not 'Wakefields' lack.
The time has come, the scales do call,
So line up here you one and all.
Poor old 'Jammy,' near the front—
He's under weight. Oh, the chump!
Now here comes Shaw, he's looking sore—
A thirty-second under. There's the door!
The lads outside are full of lust
To jump the scales, to wreck and bust.
But wait; one more entry still to weigh,
So hold your breath and clear the way.
Palmer can but look with awe:
They're fishing his 'plane from under the floor.
An astounded voice now announces.
Crikey lads, it's FOURTEEN OUNCES!"

The NORTH-WESTERN AREA of affiliated clubs seems to be working nice and smoothly, and I trust it is not long before all the clubs in the country are proceeding on similar lines. Many proposals were forwarded to the S.M.A.E., among them being the nomination of Mr. Houlberg as one of the officials to accompany the Wakefield team, and a far-reaching proposal that "arrangements are immediately considered for the holding of a qualifying round for entry to the Wakefield Trials in 1940. (I think that this latter item will receive a great deal of support, judging from what I heard at the Trials this year.)

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Twenty-one clubs are now represented in this area. Mr. C. S. Rushbrooke being the official delegate.

The SURREY M.A.C. are pleased to announce that they were successful in placing first and second in the "Flight Cup" event, held at Cranwell, while Mr. Reynolds placed eighth in the King Peter Cup on Whit-Monday, flying his beautiful scale model of the "Kestrel" to a time of 255 sec.

The HAYES AND D.M.A.C. have decided to cut out contests for rubber-driven models at their Gala Day on August 27th and concentrate on petrol models, especially the Frost Trophy event. Mr. Minion, of this club, succeeded in placing in the K.P. Cup team, while Mr. Gurney had bad luck in the Wakefield Trials, his second flight, of only 9 sec., pulling him from among the top men. His average, in spite of this, was 147 sec.

Mr. J. Bennett, of the WAKEFIELD (Yorks) M.F.C., found a "barn door thermal" recently, and clocked 8 min. 40 sec. O.O.S., the model eventually landing about two miles away, after an estimated flight of an hour. Another member clocked 8 min. later in the day, the model landing in the town. Windy weather has caused the lads to concentrate on gliding.

Another club to find some "lift" was the GAINSBOROUGH ST. OGGS M.A.C., when Mr. Lingard lost his model after a flip of 10 min. This was made on a visit to the Lincoln Club, and unfortunately took place after the contests were completed. An exhibition staged (photo sent) resulted in two chaps tying for first place as follows:

1. T. Stainforth (G.B.8).
W. Harrison (Wakefield).
2. A. E. Mimmack (Thermalider).
3. H. R. Walkser (Glider).

The Open Rally of the SHEFFIELD S.A.M. (hereafter to be known as the Yorkshire Rally) was held on June 25th, and proved very successful. Five counties were represented, and thanks are extended to all who attended and helped, especially the Studiette Service folk, who put in yeoman service. Results were as follow:

HAND-LAUNCHED DURATION.

- | | | |
|--------------------------------|-----|------------|
| 1. R. Higson (Macclesfield) | ... | 174.4 sec. |
| 2. A. C. Higson (Macclesfield) | ... | 162.5 " |
| 3. H. Hill (Lancs) | ... | 152.4 " |

R.O.G. DURATION. (Fuselage formula).

- | | | |
|------------------------------------|-----|------------|
| 1. E. Muxlow (Sheffield) | ... | 284.4 sec. |
| 2. A. Tindall (Lancs) | ... | 152.4 " |
| 3. F. G. Eifflander (Macclesfield) | ... | 128.6 " |

TIME LIMIT.

- | | | |
|------------------------------|-----|-----------|
| 1. A. Womersley (Frechville) | ... | 45.2 sec. |
| 2. F. Bailey (Lancs) | ... | 44.65 " |
| 3. R. Watson (Sheffield) | ... | 44.6 " |

GAS COMPETITION. (20 sec. motor run).

- | | | |
|----------------------------|-----|-----------|
| | | Glide. |
| 1. K. Marshall (Sheffield) | ... | 59.4 sec. |
| 2. P. Smith (Lancs) | ... | 56.5 " |
| 3. M. Cuttriss (Doncaster) | ... | 17.9 " |

SAILPLANES.

- | | | |
|------------------------------------|-----|-----------|
| 1. F. G. Eifflander (Macclesfield) | ... | 88.2 sec. |
| 2. F. Bailey (Lancs) | ... | 87.4 " |
| 3. A. Chapman (Nottingham) | ... | 81.8 " |

From the list, I see that the Macclesfield boys claimed four places, Lancs five and Sheffield three. Things seem to have boiled down to a struggle between these Lancs and Maccites at these meetings.

An exhibition staged by this club created a deal of interest, and good publicity for the club, while in a competition to a stated time of 45 sec. D. Mamott only clocked 5 min. O.O.S. What happened to your calculations there, Mamott?

More records for the CARDIFF M.A.C. L.S. Dingle set up the home design R.O.G. record with a flight of 2 min. 4 sec. H. J. Watkins broke the Class "C" record with 1 min. 42 sec. R.O.G. The Mad Inventors



(From left to right) A scaled-up "Lincol" built by Mr. G. R. Pugh, of Newport. Another photo from Denmark. Miss Betty Bell, of the Dumfries Club, with her record-holding model. The Blackheath glider winch in operation; and last, but not least, Messrs. Bailey and Hill; Mrs. Rushbrooke; and Mrs. Couthurst and Tindell, of the Lancs Club, at Fairley's.

(love 'em) are going to have me locked up after they have hung, drawn and quatered me (with a yard of elastic and a razor blade).

Times are improving (miracle!).

Result of the H. E. Watkins Cup.

1. Bud Morgan (H. Boys Beg. Duration),
Av. 8 flights.
Senior 69.8 sec.
2. L. S. Dingle ("Sausage," own design),
Senior 66.0 "
3. H. J. Watkins (super duration), Senior ... 51.8 "
4. D. Prior (super duration), Junior ... 47.0 "

Bud Morgan only had two flights, as on the second the strong wind blew it into Leckwith Woods after 1 min. 58 sec. R.O.G.

Mr. Prior clocked 4 min., but unfortunately was not officially timed. Mr. Chant's "Pubcrawler" has now turned teetotaller, having an infinity for the brickworks!

Bruce Stack, of the ANDERIDA M.F.C., lost his model in Ashdown Forest after a record-breaking flight of 168 sec., but recovered it after two weeks, with very little damage from the elements. G. Gibbons also found the forest, but not his model yet! It is pointed out that prospective members should be capable of climbing every variety of tree!

Another area to form is the NORTH-EAST LONDON AREA, with Mr. D. A. Gordon as official delegate. Good work, lads! The inaugural meeting was held on June 19th, seven clubs being represented. A subscription of 5s. per club was agreed upon to defray expenses, and this area has also agreed to apply for a qualifying Wakefield round in areas. This area has hit on a good idea, enquiries having been instituted in an endeavour to secure a central flying ground available for all clubs in the group. Here's an idea for the other groups to consider.

Mr. Bowyer, of the HORNCHURCH M.A.C., won the "White Senior Cup" with an average of 69.8 sec., and P. A. White won the "White Junior Cup" with a time of 49.5 sec. On the same day Mr. A. Burge clocked 5 min. 28 sec., Mr. R. Landymore did 4 min. 6 sec. and P. Aldridge 3 min. 41 sec. All these were made on test flights for the cups mentioned, and the losers' remarks are not for your young ears! However, Mr. Burge had some compensation when he won the "Glen Cup" on a visit to the Ilford Club.

Hornchurch also won the "Ilford Challenge Cup" for the second year in succession, this being a team event. It has been decided to award a minimum sum of 2s. 6d. to any member who loses his model in competition, as some recompense. Not a bad idea!

Many of you who were at the Wakefield Trials will remember Howard Boys's tail-less machine he entered. This model was again flown at the Northern Heights Gala Day, and clocked 42 sec. on 60 per cent turns. Then, with 80 per cent turns, and slightly better trim, it flew O.O.S. for 84 sec., and lost. If anyone should hear of the whereabouts of this model, Mr. Boys would be very pleased to hear from them.

HAIFAX M.A.C. must be feeling very much on top of the world at the moment. Two members in the Wakefield team (a photo is printed of these chaps) the Pilcher and Short Bros. Cups won, and a steady lead for the Plugge Cup championship event. Seems that Yorkshire will be able to claim the title of "Cocks o' the North" for 1940. Unfortunately this club is deprived of its

ground until after the hay is in, and intending visitors are asked to wait until after the holidays.

Flying in the *Model Engineer* Cup at Fairey's Aerodrome, Mr. J. O. Young, of the HARROW M.A.C., whose name has appeared frequently in these reports, put up a winch-launched flight of 7 min. 4.25 sec., which has been submitted as a club record. The previous record was somewhere in the region of 2 min., although an unofficial flight of 80 min. has been obtained.

Mr. J. Hands, flying a new model in his first contest this year, put up the highest time of the day, 160 sec., and took first place on that day.

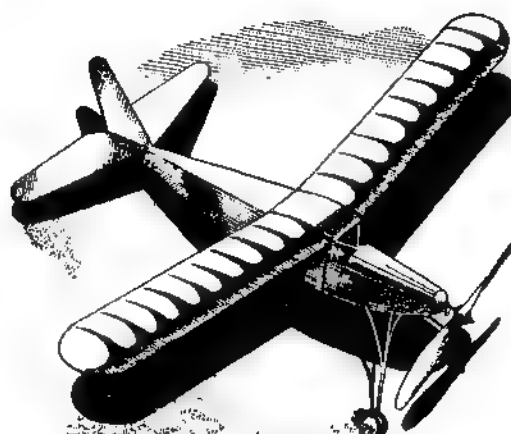
Successes at the N.H.M.F.C. gala were limited to a prize in the pusher contest, obtained by one of the younger members, Mr. Dickinson, although several members will no doubt collect unwanted chills from standing by their models in impossible conditions.

A photo sent in with this report shows a Westland "Lysander" built and photographed by Mr. I. D. Keir, and I would call the attention of all to the way in which this model has been snapped. Too many of you stick to the old backyard type of photography, and it is a treat to get a photo of this sort.

Mr. D. Burton, of the WHITGIFT M.A.C., recently broke the club H.L. record with a flight of 7 min. 25 sec. O.O.S. with a veteran Seafly, the model being last seen in the direction of Coulsdon and still climbing! News of this model will be very welcome to the owner.

The secretary of the MANSTON M.A.C. is wondering why their club report was not printed last month, as "*this must have been received by the 7th of the month, which I understand is the latest date for publication.*" Now, my dear Appleton, how many times must we print

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Reading downwards, and from left-hand side, we have Bob Buscombe, of the Northampton Club, and his 'plane, which was placed seventh in the Wakefield Trials. Below (and topright-hand corner), two fine Wakefield models built by Messrs. Collins and Hopman, of the Wansted M.A.C. A "Fillon" model, built from plans given with the May issue of THE AERO-MODELLER; and, at bottom, two "tadpole" models built by Mr. Mitchell, of Stockport. Next we have a light-weight model, in the hands of its builder, Mr. E. Coppall, of the Stonegate (Leicester) Club, and, underneath, "Tarzan" Gladwell, of Wolverhampton, does a spot of tree climbing! Following are Messrs. Davis and Goodair, of Croydon; in the middle the gliding entries of The General Aircraft Co. at the King Peter Cup Trials; and, at bottom, Mr. J. May, of Aberdeen, with his "Miss Bluebird."

The model at bottom right-hand corner was built by Mr. Heedeck, of Croydon; and the one above by Mr. Smees, hon. secretary of the Chigwell Club.

the fact that CLUB REPORTS MUST BE RECEIVED AT THESE OFFICES NOT LATER THAN THE 25TH OF THE MONTH. This date has been stressed time after time, and really, it is time some of you started to read the fact! In certain circumstances it can be arranged to receive a late report, but only when advised.

This club is now trying to find a larger field, as many models now go out of bounds. Two new records have been established for 100 sq. in. models, the H.L. figure being held by E. Brenchley at 58 sec., and the R.O.G. by R. Appleton at 50 sec.

A special junior competition arranged by the DULWICH M.A.C. was won by R. Price with a time of 88 sec., and was followed by Coney with 82 sec. This club were honoured by a lecture by our old friend, Mr. Burchell, who talked to them on duration models.

About forty-five competitors took part in a fine day's sport at the ROTHERHAM M.F.C. ground recently, the results being:

1. Club Duration.—A. V. Wilson, average of three flights, 129 sec.
2. Concours d'Elegance.—A. V. Wilson.
3. Junior Duration (under 16 years).—E. Fuller, average of three flights, 118 sec.
4. Hidden times.—R. Cooke, 79 sec.; G. Clayton, 86 sec.; A. V. Wilson, 58 sec.
5. Open Duration.—E. Leach, of Doncaster, average of three flights, 188 sec.

This man lost a 'plane, 7 min. 4 sec., O.O.S.

6. Glider.—E. Darby, average of three flights, 50 sec.

(This was with an ordinary 'plane, weighted). One flight was 2 min. 30 sec.

7. Best flight of day.—J. W. Jackson, 7 min. 44 sec., O.O.S.
8. "Sweeten" Comet Kit prize.—N. Gregory, "Mister Mulligan."
9. Nearest to 40 sec.—J. W. Jackson, 39.5 sec.

Altogether three 'planes were lost.

The BOURNEMOUTH M.A.S. annual gala day, held at Boscombe Down Aerodrome, attracted model aircraft enthusiasts from as far afield as London and Hayes; and, in spite of a strong wind, which caused many crashes—especially among the petrol-driven models—an interesting day was spent.

One of the most interesting models was Captain Grant's petrol-driven biplane, which releases a rubber-driven model while in flight.

There were four competitions, the results of those for rubber-driven models being:

NOMINATION CONTEST.

1. D. E. Neale (Salisbury).
2. Mr. Frampton (Bournemouth).
3. D. Grant (Bournemouth).

DURATION CONTEST.

1. J. W. Hall (London) ... 141.4 sec.
2. S. Colling (London) ... 123.7 "
3. D. Gurney (London) ... 97.0 "

Winners in the events for petrol-engined machines were:

SOUTHERN COUNTIES' CHALLENGE TROPHY.

1. J. Cozall (Hayes) ... 334 points

2. M. Norman (Hayes) ... 206 sec.
 3. E. Burt (Bournemouth) ... 188 "
 Consolation prize: Mr. Pitt (Bournemouth).

FIXED TIME CONTEST.
 (For the flight nearest 55 sec.).

1. E. Burt (Bournemouth) ... 55.2 sec.
 2. G. Rickard (Bournemouth) ... 54.1 "
 3. M. Norman (Hayes) ... 52.5 "
 Consolation prize: Mr. Crabb (Hayes).

Two rubber-driven models were lost by competitors during the day—one on its first competition flight, after being timed for 174 sec. out of sight; and the other by Mr. I. W. Hall, after an "out of sight" flight of 8 min. 7 sec.

Both aircraft were last seen making towards Wilsford at a considerable height.

Over 300 people attended the Whit-Monday meeting of the IGRANIC M.A.C. at Bedford, and over 1,500 people visited the Exhibition Tent, which was run in connection with the Sports Club Fête, where the winning 'planes were exhibited, and also a collection of over 100 solid scale models of the various types of 'planes used during and since the war by the R.F.C. and R.A.F., together with models of associated equipment now used with the R.A.F. and also for Anti-Aircraft Defence. Also on view were a collection of solid scale models of some well-known commercial 'planes and flying boats.

Results of the main flying contests are as follow:

Longest flight by club member: R. O. Harlow.

OPEN DURATION (Any Type).

1. R. Hinks (Luton M.A.C.).
 2. R. Hiscoe (Southport M.A.C.).
 3. R. Harlow (Igranic).
 4. F. J. Lofley (Midland M.A.C.).

WAKEFIELD TYPE CONTEST.

1. R. Hiscoe (Southport).
 2. R. Hinks (Luton).
 3. G. Fox (Sheffield).

A new club, the WALLSEND M.F.C., have been trying r.t.p. flying, the records at the moment being 35 sec. H.L. and 32 sec. R.O.G. A member with a 30 in. glider hit a thermal, and lost the job after a timed flight of 270 sec.

Mr. H. Marshall, of 28 Carisbrook Close, Enfield, is anxious to get in touch with aero-modellers in his area with a view to forming a club there.

Over 70 'planes were on exhibition by the WATFORD M.A.C., the centre of attraction being Mr. Jackson's partly finished model of a Hawker Fury of 5 ft. span.

The WESTWOOD M.A.C. are holding their first annual rally at Beverley, East Yorks, on July 28rd, and all are invited to attend. The field covers about



FREDDIE.

"ON FRIDAY NIGHTS I WIND IT UP BACKWARDS."

one square mile, and is approved for petrol model flying. The club secretary recently broke the club record with a flight of 9 min. 30 sec. with a 10 oz. Wakefield model.

There has been some adjustment of the Wakefield Trials list since published last month. The NORTH-AMPTON M.A.C. report now that a junior member, Bob Baskcombe, came seventh in the Trials. A local rally held last month resulted:

R.O.G. DURATION.
(Average three flights).

1. J. W. Cragg (Kettering and D.M.A.S.) ... 161.0 sec.
2. A. Goodman (N.M.A.C.) ... 108.0 "
3. R. Glass (N.M.A.C.) ... 97.6 "

J. W. Cragg did 4 min. 48 sec. O.O.S. on his last flight, his plane being lost. P. Peach (N.M.A.C.) lost his second model in six days. His job just disappeared "up" after 8 min. 52 sec., breaking the club R.O.G. record. Both jobs were returned in "bits" from seven and eight miles away respectively.

R.O.G. DURATION.
(Average three flights). (After 5 o'clock).

1. K. Austin (N.M.A.C.) ... 115.88 sec.
2. C. W. Goodman (N.M.A.C.) 94.8 "
3. T. Crawley (N.M.A.C.) ... 79.66 "

The members of the CHESTER M.F.C. have been presented with a Cup by Mr. Wilkinson, this to be awarded to the member with most points at the close of the season. Members visited the Cotebrook Garden Fête and collected most of the prizes in the model flying department, Mr. Wilde collecting two cups and Mr. Hamilton Reade one. Mr. Meredith has broken the

scale record with a flight of 55 sec., and Mr. Wilde has raised the H.L. figure to 160 sec. with his Wakefield model.

Mrs. Orchard, of the SLOUGH AND WINDSOR M.A.C., is to be complimented on her repeated efforts at repairing on the field at Wakefield Trials Day—the Press being very impressed with her efforts. Mr. Henery had a very interesting model on view, containing many—and workable—gadgets, including folding airscrew and retractable undercarriage.

The MACCLESFIELD M.A.S. is holding its Rally on July 30th, where cash prizes of £5 are to be won, also a cup. These lads have been doing great things at the local rallies, and are to be reckoned with at any meeting.

The formation of an Air Cadet Corps has stimulated interest in the area covered by the NEWCASTLE (Staffs) AND D.M.A.C., and new members are rolling in. The club's youngest member, Billy Price, still continues to turn out a model per week—the senior members taking about this time to carve a prop.!

The SPELDHURST M.A.C. are to be congratulated on securing Sir Kingsley Wood as their President; also on the use of the old Penshurst Aerodrome for flying.

A printer's error in the last issue gave Mr. Archer, of the WINDSOR (Manchester) M.A.C., time as 11.4 sec. This should, of course, have read 114 sec. Sorry! Mr. E. Wright, of this club, managed to lose his glider after a flight of 4 min. 35 sec., and was returned from Bolton, over 15 miles away. Look out, Bolton's you'll be timing the wrong models!

Mr. Haddock won the Morley Cup Competition of the READING AND D.M.A.C., with Mr. Buswell collecting the Minchin Trophy. This club has been presented with three new cups, which will be allotted to scale, Wakefield and team competitions.

Six events will be staged at the First Grand Rally of the MILDENHALL M.A.C., at the Mildenhall R.A.F. Station on July 28th, commencing at 1 p.m. Time permitting, there will also be an event for ladies.

A new club has started in the Bedford area, to be known as the BEDFORD M.A.C. Will those interested get in touch with Mr. P. C. Grant at 6 Woburn Road, Bedford?

Appreciation is expressed by the CITY M.F.C. for the publication of the positions in the Plugge Cup Competition, as this seems to be the only source of information that can be obtained. I hope you will try and get away from that thirteenth position, City! Mr. Clifford, the Club Secretary, succeeded in securing a place on the K.P. team, finishing sixth.

The first competitions of the newly-formed OFFERTON M.A.C. were spoilt by wind and rain, but Mr. J. Wood managed to win the small 'plane class, with Mr. Fornashum top man in the large class. Waterlogged models do not perform too well!

Members of the SALISBURY AND D.M.E.S. visited Bournemouth and collected two prizes, one being a "hard luck" award! Several entrants are swapping positions in the Duration Cup Contest, though the first four still keep their positions, e.g. Messrs. Scammell, Sellwood, Snook and Hill. The top average (nine flights to date) is 86 sec.—which is not bad going.

Mr. Pitcher, of the CROYDON AND D.M.A.C., has raised the club heavy-weight record to 169 sec. This club's resolution re the forwarding of petrol model

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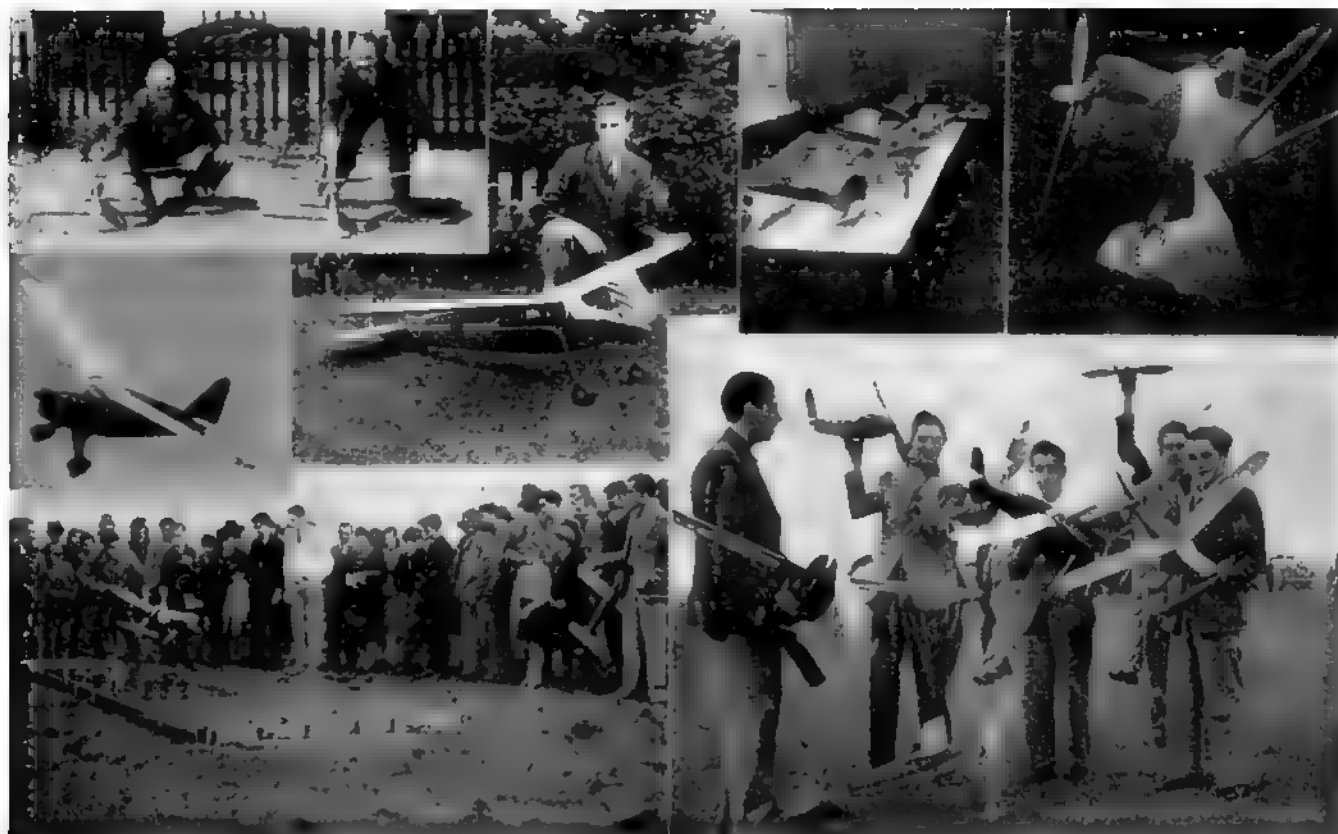


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In this group of photos we have at top left Messrs. Stott and Lees of the Halifax Club, all set ready for their trip to New York; and to the right of them is Mr. Anderson, of Leeds, with his petrol model (he says his pained expression is due to the high wind!). The model in flight was built by Mr. Venn, of the Peterborough Club. Below is shown a model taking-off in the Short's Seaplane Contest. The "Lysander" was built by Mr. Kier, of the Harrow Club; whilst the exhibition photo is from the Reading Club. Underneath we have a photo of members of the Barnes Club at the Wakefield Trials.

registrations through the various club secretaries has been approved, and should prove a useful innovation.

More records are reported from the DAGENHAM M.A.C., Mr. Chilcott raising the pole-flying figure to 97 sec., while Mr. Baines has made a glider flight of over seven hours, going out of sight after over an hour. Was this officially timed, Dagenham? The attention these chaps have given to gliding has resulted in their winning the Fairey Challenge Trophy.

The NORTHERN HEIGHTS M.F.C. gala day is reported elsewhere in this journal, but I would like to congratulate the club on providing three men for the K.P. team, these being Messrs. Wilson, Cox and Day. And, of course, they have Copland in the Wakefield team. Nice work! Two recent competitions resulted as follows:

WILSON DURATION CUP.

	Av.
1. F. E. Wilson	132 sec.
2. A. G. Bell	121 "
OLD-TIMERS' SHIELD (for consistency).	
1. Mr. Hubbard	48.2, 48.4 and 50 sec.

The new club premises of this club were opened by Dr. and Mrs. Thurston, and Dr. Thurston has become a life member.

The LINCOLN M.E.C. report contains a criticism of the "Flight Cup" event at Cranwell that I am inclined to agree with. The report reads: "You grouse about late starts in decentralised competitions. What about giving the S.M.A.E. a 'word' about the late

start in this competition. Scheduled to start at 1 p.m., it started nearer 2.30 p.m. Why did they not get flights in of competitors there at 1 p.m., and accept entries of those delayed by weather when they arrived? One-and-a-half hours of good flying weather wasted!" Well, any questions? This club has been holding inter-club fixtures with others in the district, honours going fairly evenly, with rain winning one round hands down.

In view of the success of the model aircraft events at Cotebrook, Mr. H. Morrey is anxious to start a club in that district, and would be pleased if those interested will get in touch with him at Utkinton Lane, Cotebrook, Tarporley, Cheshire. It is hoped to hold another open meeting on August Holiday Monday.

Ireland is going ahead with the movement, and a new club there is the BELFAST M.F.C., with 24 members. Concentration is on gliders and light-weight jobs, though no F.A.I. records have been beaten yet! Give 'em time.

Membership of the GENERAL AIRCRAFT M.A.C. now stands at 70, while the club records are:

R.O.G., 889 sec.

Glider, 210 sec.

Scale, 40 sec.

Speed models are receiving a great deal of attention at the moment.

The BOLTON M.A.S. are bucked at receiving two reports in last month's issue, but it won't happen again! That's what comes of sending in two different reports! The winner of the Junior Novices Competition was



At top left we show a Wakefield model built by Mr. Biggs, of Woking; and, underneath, another monocoque model built by Mr. Suggate, of the Hornchurch Club. Top centre shows a group of members of the Wallsend Club; and, underneath, a fine bit of work, a "Fairchild 22," built by Mr. Weaver, of the Ulster Club. At top right are some models built by the Anderson brothers, of Staplehurst; and, underneath, a "Fairy Facula" and a "Frog" model, built by two members of the Chelmsford Club.

F. Orth, with a best time of 189.6 sec.; and in the under 150 sq. in. class A. Lancaster took home the cup with an average time of 175.8 sec.

The end of May saw an epidemic of record-breaking in the WOLVERHAMPTON M.A.C. The previous figure of 90 sec. has been raised by stages, as follows: Mr. Holmes, 117 sec.; Mr. Pugh, 121 sec.; and finally by Mr. Ormerod, with 146 sec. Mr. Pugh made best time of the day on a recent visit to Cosford, with a flight of 2 min. O.O.S.

The ASHTON AND D.M.A.C. is to hold an open rally on September 24th, place to be announced later. Mr. J. Livesey, of this club, has won the Frog Junior Trophy with an average time of just under three minutes, while C. B. Jackson has lost two new models after flights of three and two minutes.

Poor weather undoubtedly had its effect on the turn up for the recent meeting of the CHELMSFORD S.M.E., only one entrant arriving from outside the club for the open duration competition. Hardly encouraging, but here's luck to the next time. The light-weight event was run off, and resulted in Mr. A. Dann winning with a time of 89 sec., with Messrs. Monk and Bragg following up.

The WEST SUSSEX M.A.S. spent quite a deal of time in the orchard at the N.H. Gala Day! Best flight of the month in this club was made by Mr. Warring, with 5 min. 8 sec. R.O.G. with his Wakefield machine. He won the Kempton Cup for Wakefield models with an average of 187 sec. (why couldn't he do this at the Trials?), second man being F. W. Gates, and third K. Byatt. Mr. Colver has introduced a semi-scale Gloster Gladiator with 4 cc. petrol engine, and I am assured that the performance is very spectacular.

In the CHINGFORD M.F.C. Mr. D. Miller's "Fairy Facula" was in the height of its glory on May 14th, when it decided to go on tour. Being launched from Chingford, it was clocked 10 min. 20 sec. O.O.S., and landed, undamaged, one-and-a-half hours later in a recreation ground at Barking, 12 miles away. Fortunately it fell into good hands, and was brought home

next day. Another outstanding flight was made by a member's machine of 4 min. 7 sec., but, curiously enough, travelled only 250 yards "as the crow flies," through soaring and descending in tight circles.

In order to encourage efforts with scale flying models, Mr. Flack has generously presented the club with a handsome cup, to be known as "The Ericson Cup," to be competed for every three months.

The President's Cup of the WOKING AND D.M.A.C. was won for the second time in succession by Mr. V. J. Cross, with a time of 87 sec. (best time 129.5 sec. O.O.S.), with Mr. C. H. Biggs second, average time 79 sec. Many of the models flown away at Fairey's land by this club's ground, and many have been returned.

J. Chorlton, of the STOCKPORT AND D.M.F.C., won a third place at the Warrington Rally with a time of 155 sec. This club have secured a large area at Disley for flying, and hope to invite others along when all details are settled.

The *Press and Journal* Cup for indoor models was won by G. Stephen, of the ABERDEEN M.A.C., with an average of 89 sec. I am told he builds models that couldn't be seen on the other side of a sixpence! These chaps are sorry they did not exactly burn up the heather at the Glasgow meeting on June 4th, in fact the weather seems to have been somewhat putrid. Still, the experience gained has much to recommend it.

Another rally spoilt by weather was the HUDDERSFIELD A.M.S. affair, though an encouraging turn-up made up in part for the rain, etc. The proximity of a reservoir did nothing to damp anyone's ardour (joke—ha, ha), although Norman Lees's sailplane came close enough to put the wind up several of the lads. One flier also claimed to have flown completely over the reservoir.

Results were:

EVENT 1. CONCOURS.

1. M. Eifflaender (Macclesfield) ... 20 points
2. Mr. P. Lees (Halifax) ... 19 "

EVENT 2. GLIDING.

1. Mr. N. Lees (Halifax) ... 80.4 sec.
2. Mr. C. Tooby (Halifax) ... 18.6 "

EVENT 3. OPEN DURATION (Hand Launched).

1. Mr. J. G. Eiffaender
(Macclesfield) 98.0 "
2. Mr. L. Eiffaender (Macclesfield) 97.5 "
8. Mr. R. W. Higson (Macclesfield) 97.0 "

As can be seen, Macclesfield and Halifax certainly put it across 'em, the brothers Eiffaender between them carrying off considerable booty. We hope it was worth it. L. Stott, of Halifax, was the winner of a special prize for the best flight of the day, with a time of 111 sec. (I wondered what had happened to the Lancs lads at this event, but I see from their report that they had four fixtures of their own on that day, so that accounts for it!)

Mr. Avory, of the VICTORIA M.A.C., has raised the club record to 7 min. 15 sec. O.O.S. whilst testing for an inter-club event! Unluckily, he was not able to get it back in time for the event. However, he won the Tarrant Cup on another date, J. Greening being second, while G. Driver won the Quarter Cup, Avory following him on this occasion.

The recently affiliated WIRRAL M.A.S. has now over 80 members, thanks to the notice put in these columns. They hope to attend the Northern Rally in full force.

Record-attacking is taking place in the SHEFFIELD AIR LEAGUE SOCIETY, for a prize donated by the secretary, the leader at the moment being Mr. Parkin, with a time of 121 sec. It is hoped to hold an open meeting at the end of August.

A meeting of representatives of the Midland Clubs was convened by the BIRMINGHAM M.A.C., with Mr. Houlberg taking the chair. The purpose was to decide the date and events of the Midland Rally. Advantage of the meeting was taken to inaugurate the Midland Area Scheme, and Mr. H. A. C. Hassall undertook the office of preliminary secretary, to whom all correspondence and suggestions should be addressed at 24 Law Cliff Road, Great Barr, Birmingham, 22. The Midland Rally will take place on September 8rd at Dunton Aerodrome, and all clubs are cordially invited. The events are: (1) The Brandish Rose Bowl (limited to Midland Club teams). (2) M.M.A.C. Glider Trophy. (3) Light-weight Cup. (4) Heavy-weight Cup. (5) Concours d'Elegance Cup. (6) Nomination contest for petrol models. (7) K. and M.A.A. Cup for biplanes to be run off. The club record has been raised by Mr. W. V. Jones, with his Wakefield model, to 14 min. 27 sec.

The newly-formed TROWBRIDGE AND D.A.M.C. records are: Indoor fuselage, 40 sec.; outdoor, 88.5 sec.; soar glider, 28 sec.; held by Messrs. Dallimore, Wilkins and Long respectively.

A new member of the LYMINGTON AND WEST M.E.S., Mr. S. Roberts, won the recent cup competition with an average time of 40 sec. Mr. Humby has lost his model after a flight of 10 min. O.O.S., and though it is understood that the model has been found, it has not been returned yet.

New clubs still keep rolling in, and another new one is the NORTH WIRRAL M.A.C., secretary Mr. J. H. Wilson, of 24 Hall Drive, Greasby, Wirral. (May I suggest that your title is too similar to the affiliated Wirral Club, and may lead to complication?) The secretary claims to have built over 150 models altogether. Whew!

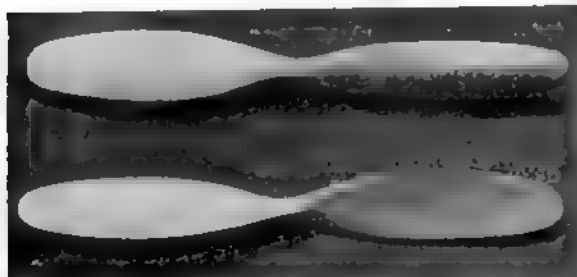
And last, but by no means least, we come to the report of the LEEDS M.F.C. Five members entered models in the Flight Cup at Cranwell, two unfortunately developing starting troubles at the first flight. Mr. P. Reason, though announced as third, has since been relegated to fourth position, and Mr. Anderton gained sixth. Mr. Anderton raises an interesting point as follows:

"While on the subject, may I respectfully suggest that the contest might have been attended by more northern clubs than was the case. I don't know of any entries from the north other than our own; surely a poor response to the gesture of the S.M.A.E. holding a meeting away from Fairey's. If this sort of thing happens we must not grumble when all the major events are held in the south. Actually, seventeen members of the Leeds Club were on the aerodrome at Cranwell."

Whilst agreeing up to a point with these views, I think I am right when I say that there is not the interest in petrol models that there would have been with a similar "outside" event for rubber-driven types. It is my experience that the proportion of power models is much greater in the south than the north—presumably on the accepted reason that there is generally more "spare cash" down that end of the country.

And so, my little chickadees, away to the sea and sands for the annual holiday (I'm told to forget all about models, etc., for two weeks!), and here's hoping that in our next pow-wow we shall be able to congratulate the English teams on their successes! Until then, all the best you wish yourselves

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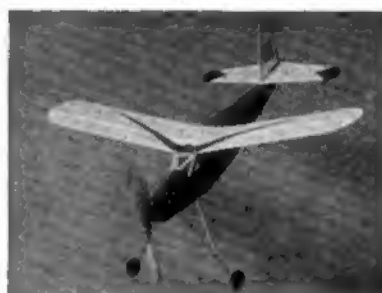
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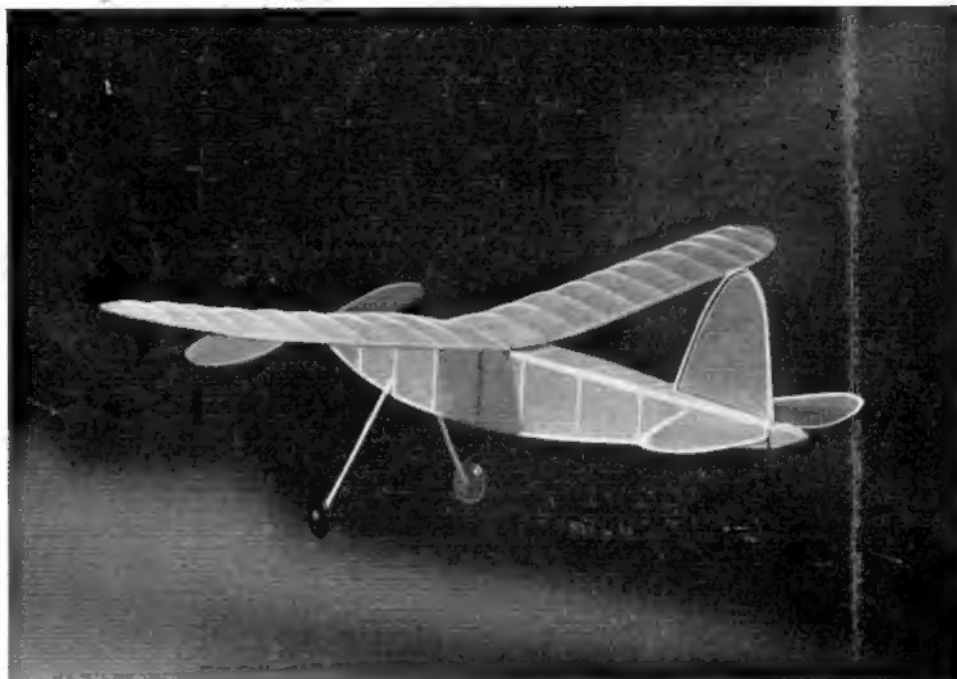
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